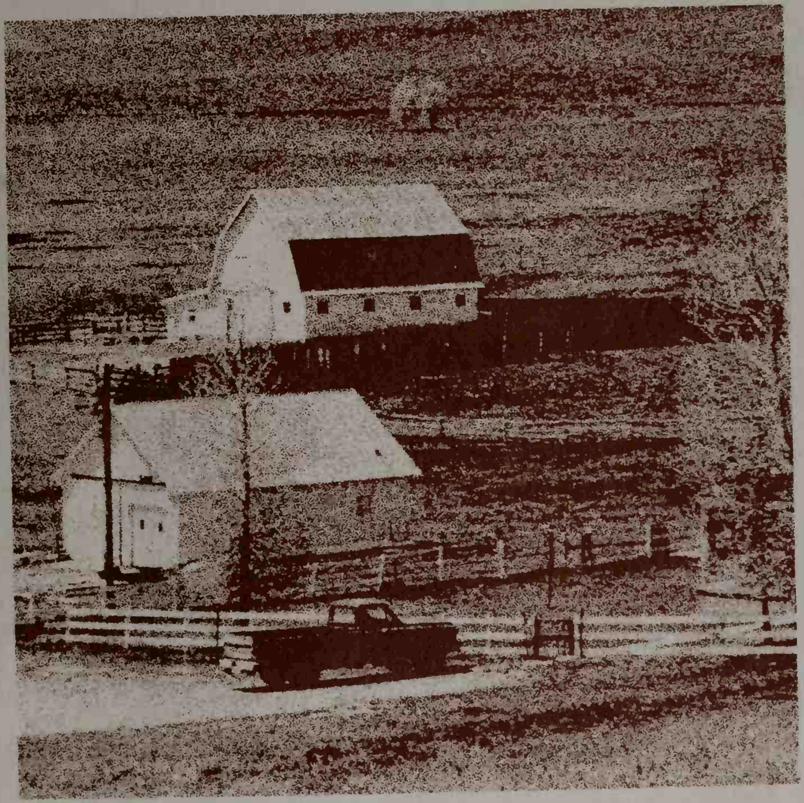
Fact Book of U.S. Agriculture



United States
Department of
Agriculture

Miscellaneous
Publication
Number 1063

FACT BOOK OF U.S. AGRICULTURE

Compiled from Department Sources by the Office of
Governmental and Public Affairs

Miscellaneous Publication No. 1063
United States Department of Agriculture

Revised November 1979

For sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402
Stock Number 001–000–04067–7

PREFACE

The contents of the Fact Book of U.S. Agriculture are organized to reflect the structure of modern agriculture. The major subdivisions:

I. Farm Production Supplies deals with farm production goods and the industries and service organizations which produce the goods and services that farmers buy to produce food and fiber.

II. The Farming Operation covers the farm business itself which combines land, labor, management, and capital to produce farm products.

III. Food Marketing describes the system of transportation, processing, and merchandising—including consumer education, advertising, and other elements of marketing—that converts farm products into consumer products ready for use in homes, restaurants, and institutions here and overseas.

IV. Agricultural Services deals with activities of the U.S. Department of Agriculture and other government and private agencies which support modern agriculture—research, inspection, extension, statistics, forest management, regulatory activities, grading services, credit, and income support.

V. The Rural Social Environment pertains to the population, environment, and social problems of smaller towns and the open country.

Over the years, farming has become increasingly integrated into the general economy. Farmers are much more dependent on business and industry for goods and services used in production. Similarly, they are more closely tied to the marketing system. Rapid technological change continues to transform agriculture and the institutions that serve it. The **Fact Book of U.S. Agriculture** is intended as a handy source of the main trends in agriculture for reporters, editorial writers, farm organization leaders, agribusiness managers, and others who speak and write about agriculture.

More detailed tabulations and charts will be found in **Agricultural Statistics** and the **Handbook of Agricultural Charts,** both revised yearly. **Agricultural Statistics** is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Single copies of the **Handbook of Agricultural Charts** are free on request. Other selected references are listed on page 108.

The Fact Book of U.S. Agriculture is a publication of the Office of Governmental and Public Affairs, U.S. Department of Agriculture, Washington, D.C. 20250.

Eligibility for participation in all programs administered by the Department of Agriculture is established by law without regard to race, color, national origin, sex, or religion. If you feel you have been denied the benefits of any USDA program on any of these grounds, write directly to the Secretary of Agriculture, Washington, D.C. 20250.

CONTENTS

Page

INTRODUCTION 1

I. FARM PRODUCTION SUPPLIES 5

1. Inputs for Agriculture 5
2. Land 5
3. Water 6
4. Farm Labor 11
5. Farm Expenses 11
6. Agricultural Credit 13
7. The Balance Sheet 14
8. Farm Power 15
9. Farm Machinery 16
10. Livestock and Poultry Feed 17
11. Pesticides and Integrated Pest Management 18
12. Fertilizer 20

II. THE FARMING OPERATION 22

13. Farming Regions 22
14. Farms and Land in Farms 24
15. Rise of U.S. Production 24
16. Farm Income 25
17. Farms by Sales Classes 26
18. Family-Controlled Farming 27
19. Land Tenure 29
20. Farmland Ownership 32
21. Contract Farming and Vertical Integration 32

III. FOOD MARKETING 35

22. Cost of Food Services and Distribution 35
23. Food Expenditures and Prices 35
24. Farm-Retail Price Spread 36
25. Per Capita Food Consumption and Nutrition 36
26. Trade Blocs 37
27. Foreign Trade—Exports 39
28. Foreign Trade—Imports 39
29. Balance of Payments 40

IV. AGRICULTURAL SERVICES 41

30. Agricultural Research 41
31. Extension Education 43

Page
32. Forest Management 44
33. Farm Credit Administration 46
34. Credit Through USDA Agencies 46
35. Farmer Cooperatives 50
36. Marketing Improvement 51
37. Transportation Services 51
38. Market Regulatory Laws 52
39. Marketing Orders 53
40. Research and Promotion Orders 54
41. Market News 55
42. Economics, Statistics, and Cooperatives Service 55
43. Purchase Programs 56
44. Food Merchandising Assistance 57
45. Food Assistance Programs 57
46. Export Services 58
47. USDA Grading Programs 59
48. Meat and Poultry Inspection 60
49. Egg Products Inspection 61
50. Federal Grain Inspection Service 62
51. Regulation of Packers and Stockyards 62
52. Plant Protection and Quarantine 63
53. Veterinary Services 64
54. Production Adjustments 65
55. Price Support Programs 66
56. Grain Reserve Programs 67
57. Farm Facility Loans 68
58. Agricultural Conservation Program 68
59. Emergency Conservation Program 69
60. The Water Bank Program 69
61. Soil and Water Conservation 69

V. THE RURAL SOCIAL ENVIRONMENT 71

62. Rural Population 71
63. Age and Race 71
64. Rural Employment 72
65. Rural Income 73
66. Housing 74
67. Local Governments 74
68. Differential Tax Assessment 75
69. Rural Education 76
70. Health 77
71. Recreation 78
72. Interlocal and Regional Cooperation 79

Page

VI. APPENDIX

73. Tables 81
74. Glossary 97
75. Selected References 108
76. Farm Income Concepts 117

TABLES

Page

1. Agricultural and nonagricultural uses of land, United States, 1977 6
2. Indexes of total farm input and major input subgroups, United States, 1910-78 7
3. U.S. crops irrigated in 1974 10
4. Farm production expenses, 1963, 1968, 1973, and 1978 12
5. Farm debts, 1940, 1950, 1960, 1970, and 1977-78 14
6. Farmers' assets, debts, and equity, 1940, 1950, 1960, 1970, 1979 16
7. Kinds and quantities of feed consumed by livestock and poultry, feeding years 1965-66 and 1978-79 17
8. Number of farms and land in farms, by States, 1976-79 23
9. Agricultural productivity 25
10. Average income per farm, 1977 28
11. Cash receipts from farm marketings, 1977 30
12. Share of the retail price of specified foods, represented by farm value, 1968 and 1978 37
13. U.S. rural population, 1950, 1960, 1970, and 1977 71
14. Agriculture's capacity to produce, 1951, 1956, 1961 and 1966-78 81
15. Agricultural prices, farm income, assets, and exports, 1951, 1956, 1961, and 1966-79 82
16. Leading Sates for cash receipts, 1977 83
17. Income of farmers and farm people from all sources, 1940 and 1945-78 85
18. Wheat: Area, yield, supply, disappearance, and prices, 1960-78 87
19. Corn (grain only): Area, yield, supply, disappearance, and prices, 1960-78 88
20. Soybeans: Area, yield, supply, disappearance, and prices, 1960-79 89
21. Cotton (all kinds): Area, yield, supply, disappearance, and prices, 1963-78 90
22. Cattle and Calves: Inventory numbers, call crop, disposition, production, and rices, 1960-78 91
23. Hogs: Inventory numbers, pig crop, disposition, production, and prices, 1960-78 92
24. Sheep and Lambs: Inventory numbers, lamb crop, disposition, production, and prices, 1960-78 93
25. Milk: Supplies, utilization, and prices, 1960-78 94

INTRODUCTION

THE NATION'S AGRICULTURAL INDUSTRY

Agriculture is the Nation's biggest industry. Its assets, totaling $790 billion, are equal to about 80 percent of the capital assets of all manufacturing corporations in the United States.

Agriculture is also the Nation's largest employer. Between 14 and 17 million people work in some phase of agriculture—from growing food and fiber to selling it at the supermarket. Farming itself uses 3.9 million workers—as many as the combined payrolls of transportation, the steel industry, and the automobile industry.

The Nation's agricultural production is conducted by 2.7 million farms. Recent tabulations show that in 1977:

- 1,772,000 farms (66.3 percent of all farms) sold less than $20,000 worth of farm products per farm.
- 323,000 (12.1 percent) sold farm products worth $20,000 to $40,000.
- 390,000 (14.6 percent) sold farm products worth $40,000 to $100,000.
- 187,000 (37 percent) sold farm products worth more than $100,000. Of these farms, 63,000 had sales totaling more than $200,000.

Agriculture requires the services of 8 to 10 million people to store, transport, process, and merchandize the output of the Nation's farms.

Here are a few examples of where these people work:

- Meat and poultry industry, including meatpacking, prepared meats, and poultry dressing plants, employs 308,000 workers and has a payroll of almost $3.2 billion.
- Dairy industry, including manufacturers of such products as fluid milk, concentrated and dried milk, cheese, butter, and ice cream, employs 170,400 workers and has a payroll of more than $1.8 billion.
- Baking industry, including plants for making bread, biscuits, and crackers, employs 236,700 workers and has a payroll of $2.6 billion.
- Canned, cured, and frozen food plants employ 223,300 workers and have payrolls of $1.9 billion.
- Cotton mills and finishing plants employ 130,600 workers and have payrolls of almost $1 billion.

Another 3 million people provide the seeds, fertilizers, and other supplies farmers use for production and family living.

That adds up to approximately one out of every five jobs in private enterprise.

AGRICULTURE GETS FOOD TO YOU WHERE YOU WANT IT

The American farmer is linked to you by a complex food marketing system.

Last year consumers spent $208 billion on U.S. farm-produced foods. About $141 billion of that was to get the food from the farm to your table. The food was assembled, inspected, graded, stored, processed, packaged, wholesaled, and retailed—more than 400 million tons of it. To reach you, this food traveled across 201,000 miles of railroads, 3.2 million miles of intercity highways, and 26,000 miles of improved waterways.

The foods that poured into your supermarket came in 6,000 to 8,000 different forms—many of which did not even exist 5 years ago and may very well not exist 5 years from now. That's because Americans are attracted to newer and better foods with more built-in conveniences—as well as to food in attractive packages that preserve the quality. Packaging and transportation cost $28 billion last year—and might well have been considerably more except for a number of recent innovations such as special shipping boxes for fruits and poultry. The food marketing system is developing a computerized checkout, inventory, and ordering system that might further streamline food retailing and help to simplify shopping.

FARMERS ARE EFFICIENT PRODUCERS

American farmers today produce over 64 percent more crop output on the same number of acres than did their fathers. Today, 1 hour of farm labor produces 13 times as much food and other crops as it did in the 1919-21 period.

One farmworker now supplies enough food and fiber for 59 people. Only 10 years ago, he was producing enough for 42. Because of the farmer's efficient output, we can enjoy a satisfying quantity and variety of food. In 1978, for example, Americans consumed an average of 149 pounds* of beef, veal, pork, lamb, and mutton; 57 pounds of chicken and turkey; 82 pounds of fresh fruits (plus 54 pounds of processed fruit and juice); 96 pounds of fresh vegetables (plus 65 pounds of canned or frozen vegetables); 557 pounds of dairy products; and 102 pounds of potatoes. We also used an average of 15 pounds of cotton and 1 pound of wool.

Farmers produce not only enough for us, but enough to make large quantities of farm products available for international trade.

We export more farm products than anyone else in the world.

The production from 1 cropland acre out of every 3 goes overseas.

In recent years farm exports have set records, $27 billion in fiscal 1978 alone.

---

*retail weight

Farm exports contributed a net of $13 billion to our balance of trade in 1978, which is another way of saying we got slightly over twice as much for our food and fiber exports as we paid out for food and fiber imports.

FARMERS ARE CONSUMERS AS WELL AS PRODUCERS

Like everyone else, the American farmer is a consumer and a taxpayer, as well as a producer.

He pays about $3.5 billion in farm real estate taxes annually, $742 million in personal property taxes, $5.1 billion in Federal and State income taxes, and about $525 million in sales taxes.

Annually, farm operators spend about $98 billion for goods and services to produce crops and livestock. They have available $25.2 billion in personal income from farm sources and $28.8 billion from nonfarm sources to spend for personal taxes, investments, and for the same things that city people buy.

Farmers' annual purchases include:

- $11.9 billion for farm tractors and other motor vehicles, machinery, and equipment. About 140,000 employees are required to produce this farm equipment.
- $10.8 billion for fuel, lubricants, and maintenance for machinery and motor vehicles used in the farm business. Farming uses more petroleum than any other single industry.
- $17.5 billion for feed and seed.
- $6.3 billion for fertilizer and lime.
- Products containing 360 million pounds of rubber—about 5 percent of the total used in the United States, or enough to put tires on nearly 7 million automobiles.
- 33 billion kilowatt-hours of electricity—about 2 percent of the Nation's total. That's more than the annual residential use in all New England States plus Maryland, Kentucky, and Washington, D.C.
- 6-1/2 million tons of steel in the form of farm machinery, trucks, cars, fencing, and building materials. Farm use of steel accounts for 40,000 jobs in the steel industry.

Like everyone else, farmers feel the pinch of inflation. In the last 10 years, wage rates for farmworkers have gone up 124 percent, tractors and self-propelled machinery cost 149 percent more, taxes are up 91 percent, and feeder livestock prices are up 113 percent. Overall, the average cost of commodities, interest, taxes, and farm wage rates has climbed 124 percent in the last 10 years.

YOU GET MORE FOOD FOR YOUR MONEY

Despite recent rises in food prices, family income buys considerably more food today than 25 years ago, partly because agriculture has become much more efficient and partly because consumer incomes have risen faster than food prices. For example, here's what the average U.S. factory worker could buy with an hour's pay in 1950 and in 1978:

Food Item	1950	1978
White bread	10.1 lbs.	17.0 lbs.
Frying chickens	2.5 lbs.	9.6 lbs.
Milk	8.0 qts.	14.4 qts.
Potatoes, fresh	32.7 lbs.	44.1 lbs.
Eggs	2.4 doz.	7.9 doz.
Pork	2.7 lbs.	4.3 lbs.

Our diets are more varied. We are eating 28 percent more poultry and 10 percent more beef per person than we did 10 years ago. We are eating more vegetables (13 percent) and more fruits (5 percent). Americans are also dining out more often, boosting average food sales from eating out by a whopping 134 percent.

The Nation has not forgotten its needy citizens. Family food assistance programs are provided for more than 16 million people. The National School Lunch Program reaches almost 26 million children, and 2.5 million children receive nutritious breakfasts at school under the School Breakfast Program.

WHAT THE FARMER RECEIVES (1978 ANNUAL AVERAGE)

As gross income from retail consumers:

- 39 cents per $1 spent in grocery stores for U.S. farm-grown food.
- 61 cents per $1 spent for choice beef.
- 49.7 cents for eggs selling for 78.5 cents per dozen at retail.
- 13.3 cents for the wheat in a 37.1-cent loaf of white bread.
- About 47.5 cents for an 87-cent half gallon of milk.

For their labor, capital and management to the farm:

- $111.0 billion in gross sales of crops and livestock, about $41,500 per farm. Their net return for family resources was $27.9 billion, $10,400 per farm.
- $3,146 of personal income per person on the farm; they also received an average of $3,598 of personal income from nonfarm sources. The average per capita disposable income (after taxes) of farm residents was $6,069; 90.6 percent of that of nonfarm residents ($6,696).

I. FARM PRODUCTION SUPPLIES

1. INPUTS FOR AGRICULTURE

The three basic "inputs" for agricultural production are land, labor, and capital.

Land is no longer the major production tool. The productivity of the land now depends upon the skill and knowledge with which capital is applied—the use of mechanical power and machinery, fertilizer, lime, better seed, pest control chemicals, and the technology applied to conserve and enhance the land while in productive use.

The total volume of all resources used in agriculture—land, labor, machinery, and supplies—has decreased 3 percent since 1955.

The composition of inputs, however, has changed drastically as farmers have struggled to be more productive and more efficient. Farm labor inputs have declined rapidly; farm real estate and miscellaneous input use have remained relatively constant. All other inputs, chiefly purchased, have increased rapidly. Purchased inputs are nearly 57 percent greater than in 1955; nonpurchased inputs have declined nearly 40 percent.

2. LAND

More than half of the 2.3 billion-acre land area of the United States is used to produce crops and livestock. The rest is distributed among forest land (25 percent); urban, transportation, and other uses (12 percent); and unused lands.

Our cropland resources in 1977, according to the SCS National Resource Inventories, consisted of 413 million acres, of which 368 million acres are cultivated for crops, 33 million acres are used for hay, and 12 million acres are in other uses. About 56 percent of these areas are prime farmland, which is the best land for producing food and fiber.

The Nation has nearly 1 billion acres of non-Federal rural land currently being used for pasture, range, forest, and other purposes. About 127 million acres are suitable and available for conversion to cropland if needed. Of this, 36 million acres have a high potential for conversion to cropland, and 91 million acres have a medium potential. The remaining rural land has little or no potential for conversion to cropland. This means that the cropland reserve is limited to about 13 percent of the remaining non-Federal land. Most of this land would require careful soil and water management if brought into intensive agricultural use.

Table 1.—Agricultural and nonagricultural uses of land, United States, 1977[1]

Major land use	Acres (millions)	Percentage of total
Agricultural:		
Cropland	413	18.2
Cultivated cropland	368	16.2
Cropland used for hay	33	1.5
Other cropland	12	0.5
Pastureland and range	987	43.6
Forest land grazed	61	2.7
Farmsteads	11	0.5
Total agricultural land	1,472	65.0
Nonagricultural:		
Forest land not grazed	601	26.5
Urban, transportation, and other built-up areas	90	4.0
Other land (includes 9 million acres of small water areas)[2]	102	4.5
Total nonagricultural land	793	35.0
Total land area	2,265	100.0

[1] Non-Federal data are from the SCS National Resource Inventories, 1977. Total land area and transportation data are from the Department of Commerce, 1970; the Bureau of Census; and the Department of Transportation, 1976.

[2] Small water areas are streams and rivers less than one-eighth of a mile wide and water bodies less than 60 acres in size. Small water areas are part of the land base.

During the 1967-77 period, about 3 million acres of rural land were converted annually to urban, transportation, and other built-up uses. There are 90 million acres in these uses. Another 4 million acres of small built-up areas less than 10 acres in size are included as "other land." About one-third of the converted areas were land formerly cropped. Another 200,000 acres per year are developed as small water impoundments.

3. WATER

Precipitation varies from nearly none in Death Valley desert in California to more than 100 inches per year in some areas—for example, the Olympic Mountains in Washington. The average for the 48 mainland States is 30 inches per year—a total of 4.8 billion acre-feet. (An acre-foot is water 1 foot deep covering 1 acre.) This total does not change significantly from year to year, but precipitation at any location may vary greatly.

Two-thirds of this water percolates into the soil to sustain crops, pastures, rangeland, and forests. The other third finds its way into streams, where it can be used for navigation, recreation, or power generation. Or it can be diverted from streams and, with water pumped from underground, used for irrigation, industry, and other purposes.

In 1974, 41.2 million acres were irrigated in the 50 States, an increase of 2.1 million acres since 1969 and an increase of 4.2 million

Table 2.—Indexes of total farm input and major input subgroups, United States, 1910–78
(1967 = 100)

Year	Total Inputs									
	All	Non-purchased	Purchased	Farm Labor	Farm real estate	Mechanical power and machinery	Agricultural chemicals	Feed, seed, & livestock purchases	Taxes and interest	Miscellaneous
1910	86	158	38	321	98	20	5	19	51	75
1911	88	162	38	327	97	21	6	16	52	81
1912	90	165	39	332	98	22	5	18	53	83
1913	90	165	40	327	100	23	6	19	56	84
1914	92	169	41	337	101	24	7	18	56	89
1915	92	168	41	331	102	25	5	18	61	84
1916	92	168	41	329	102	26	5	20	59	83
1917	93	174	39	338	101	28	5	17	56	85
1918	95	178	40	342	99	29	6	25	56	89
1919	95	177	40	336	100	31	6	23	59	84
1920	98	180	43	341	102	31	7	25	61	89
1921	95	170	44	315	99	32	5	28	72	81
1922	96	173	44	326	100	31	6	27	71	82
1923	97	174	45	328	101	31	7	27	71	83
1924	99	176	47	332	100	32	7	34	70	85
1925	99	177	47	338	99	33	8	31	68	87
1926	101	177	49	340	100	34	8	32	69	89
1927	99	174	49	326	101	36	8	31	71	85
1928	101	177	50	332	102	37	9	32	72	85
1929	102	177	51	329	103	38	10	31	73	86
1930	101	176	50	326	101	39	10	30	75	83
1931	178	49	333	99	38	8	26	76	87	

Table 2.—Indexes of total farm output and major input subgroups, United States, 1910–78 (Continued)
(1967 = 100)

Year	Total Inputs									
	All	Non-purchased	Purchased	Farm Labor	Farm real estate	Mechanical power and machinery	Agricul-tural chemicals	Feed, seed, & livestock purchases	Taxes and interest	Miscel-laneous
1932	97	173	46	321	96	35	5	27	79	84
1933	96	170	46	321	97	32	6	28	75	82
1934	90	156	44	288	96	31	7	27	69	76
1935	91	158	46	299	99	32	8	25	63	76
1936	93	156	50	291	99	34	10	34	68	75
1937	98	165	52	314	100	38	11	32	63	82
1938	96	158	53	293	101	39	11	33	69	76
1939	98	158	57	294	102	40	11	41	72	78
1940	100	159	58	293	103	42	13	42	72	78
1941	100	158	59	288	102	44	14	45	73	79
1942	103	166	60	296	100	51	15	48	73	76
1943	104	166	61	292	98	55	17	52	77	79
1944	105	167	62	289	98	57	20	52	79	82
1945	103	161	62	271	98	58	20	54	80	80
1946	101	155	63	260	102	57	21	53	81	81
1947	101	152	65	246	103	64	23	55	81	83
1948	103	152	67	240	103	72	25	56	79	87
1949	105	152	70	231	104	80	27	61	82	91
1950	104	150	70	217	105	84	29	63	82	87
1951	107	153	73	218	105	90	32	67	82	93
1952	107	150	75	208	105	94	35	69	85	93
1953	106	148	75	200	105	96	36	69	86	92
1954	105	146	75	192	105	96	37	71	85	90

1955	105	143	76	185	105	97	39	72	88	94
1956	103	138	77	174	102	98	41	75	87	90
1957	101	131	77	162	102	97	41	74	86	94
1958	100	127	80	156	100	97	43	79	87	98
1959	102	125	84	151	101	98	49	84	93	103
1960	101	119	86	145	100	97	49	84	94	105
1961	100	116	87	139	100	94	53	88	95	105
1962	100	113	89	133	100	94	58	90	96	108
1963	100	110	91	129	100	93	65	90	98	109
1964	100	108	93	122	100	93	71	92	99	113
1965	98	103	93	110	99	94	75	93	100	109
1966	98	100	96	103	99	96	85	97	100	104
1967	100	100	100	100	100	100	100	100	100	100
1968	100	99	101	97	99	101	105	97	101	106
1969	99	98	101	93	98	101	111	101	100	105
1970	100	97	102	89	101	100	115	104	100	109
1971	100	95	105	86	99	102	124	111	99	108
1972	100	93	106	82	98	101	131	113	100	115
1973	101	93	108	80	97	105	136	116	100	111
1974	100	93	108	78	95	109	140	107	101	110
1975	100	92	107	76	96	113	127	101	101	104
1976	102	90	115	73	97	115	145	110	101	115
1977	103	88	118	71	97	116	151	110	99	126
1978[1]	102	86	119	71	97	117	150	111	100	124

[1] Preliminary.

acres irrigated since 1964. Most of the acreage increase in irrigated land occurred in the 17 Western States and Louisiana. The greatest percentage increase since 1964—19.2 percent—occurred in the 30 Eastern States, Alaska, and Hawaii.

Table 3.—U.S. crops irrigated in 1974[1]

Crop	Irrigated acreage[2] (1,000 acres)
Land in orchards	2,547
Irish potatoes	769
Small grains	2,707
Vegetables, sweet corn, or melons for sale	1,601
Berries for sale	60
Cotton	3,699
Barley	1,340
Sorghums for all purposes	2,650
Field seed crops	278
Hay crops	7,861
Peanuts for nuts	179
Tobacco	89
Corn for all purposes	6,674
Wheat	3,236
Improved pasture	1,760
Cropland pasture	2,219
Rye	13
Oats	176
Soybeans for beans	474
Other crops	1,877

[1] Most recent farm census.

[2] Commercial farms only.

Water withdrawn and then returned to streams may be used again as long as acceptable quality is maintained. Only water that is used up (mainly by evaporation) so that it does not return to streams reduces the total usable water supply. Agriculture uses 85 out of every 100 gallons that are lost.

Management of water is becoming increasingly important as use approaches available supply. Shortages can occur in any region in any year. In some Western States, current use is already pressing heavily on available supplies. Cities and industries are using increasing amounts and thus intensifying supply and treatment problems. Water pollution is today a major conservation problem in most regions.

The total supply of water will not increase. But more water may be made available for use by demineralization, storage in surface reservoirs, recharging underground aquifers or water-bearing rocks, converting brushland to grass in lower rainfall areas, and managing vegetative cover, including forests, so as to capture and retain more snowfall. Forest lands are particularly important because they produce over 60 percent of the total water yield and are vital in maintaining quality.

Water quality and quantity can be improved and energy use reduced by improving irrigation systems. Some present systems waste as much as half of the water they receive. An average water-use efficiency of 70 to 75 percent is an achievable goal.

4. FARM LABOR

Annual average farm employment in 1977 was 4.2 million. About 3 million were farm operators and family members. Self-employed and hired workers contributed about 5 billion man-hours of farmwork, with the largest part, 2.9 billion, used in crop production. An additional 1.7 billion were used for production of livestock and livestock products. The remainder went for overhead (recordkeeping, marketing, purchasing, maintaining buildings and equipment, etc.).

Overall, the total number of persons doing some hired farmwork has fluctuated between 2.5 million and 2.8 million since 1970. These workers filled about 1.3 million jobs in 1977. About two-thirds of these people are short-term seasonal workers employed less than 3 months in agriculture. This proportion has remained relatively constant over the past decade. In 1977, longer term agricultural wageworkers (those employed for 6 months or more) numbered about 686,000, about the same as a decade ago, but an increase of 188,000 since 1971. Prior to 1971, a general declining trend existed.

A sharp reduction occurred in the number of migratory farmworkers between 1965 and 1972, dropping from 466,000 to 184,000. Since then, the number has stabilized at about 200,000.

Regional changes in the use of hired farm labor over the past decade reflect changing rates of adoption of capital intensive technology, leading to a generally greater reliance on longer term hired labor. Declines in both short-term and long-term hired labor use were recorded in the South. Relatively stable short-term labor use has occurred in the Northeast since 1972, after long-term declines. Since 1972 an upward trend in labor use has been noted. In the West, short-term labor use continues a slight declining trend, but longer term employment in 1977 was greater than it was in 1966. The grain-producing North Central region is unique in that both long-term and short-term hired labor use has steadily increased over the past decade.

The average hourly wage rate paid to all agricultural workers in 1977 was $2.87, up about 8 percent from 1976.

5. FARM EXPENSES

Farmers spent $98.1 billion on production goods and services in 1978, about 78 cents for every dollar of gross income from farming. Here are some major items of expense in recent years.

The index of prices paid by farmers for production items, interest, taxes, and wage rates was 122 percent higher in 1978 than in 1968. This compares with a rise of 88 percent in the Consumer Price Index (CPI) and a gain of 104 percent in the CPI of retail food prices.

Table 4.—Farm production expenses, 1963, 1968, 1973, and 1978

Major items	1963	1968	1973	1978
	Billion dollars			
Purchased feed	5.7	6.4	13.2	14.4
Purchased livestock	2.9	3.7	8.1	10.0
Repair and operation	4.0	4.4	5.3	10.8
Depreciation	4.7	6.2	8.9	16.6
Fertilizer and lime	1.7	2.4	3.4	6.3
Short-term interest	0.9	1.3	2.2	4.3
Mortgage interest	0.8	1.5	2.5	5.2
Property taxes	1.7	2.3	2.9	4.2
Hired labor	3.4	3.9	5.2	7.7

Part of the increase in farm costs in recent years is due to payments for services that the farmer used to perform himself. Farmers have become more specialized. Many buy extra feed; others buy all their feed instead of growing it. Suppliers construct buildings, install fences, test soils, and even finance these services as well as sell the supplies. Farmers are also making greater use of credit to increase the size of their farming operations and to buy more equipment. Interest paid by farmers has increased sharply in recent years.

Farmers' real estate taxes have also increased sharply, as has the value of their property. However, taxes are a current overhead expense and property values are a long-term asset with future convertibility to cash.

During the past decade, total farm production expenses increased from $39.5 billion in 1968 to $98.1 billion in 1978. Expenses for major overhead items—depreciation, taxes, and interest on farm mortgage debt—rose faster than current operating expenses. Hired labor costs increased 96 percent; a decline in the number of hired farmworkers helped offset rapidly rising wage rates. Compared with 1968, interest charges per acre in 1978 were 254 percent higher, tax charges per acre were 91 percent higher, wage rates up about 124 percent, prices paid for tractors and self-propelled machinery up 149 percent, other machinery up 156 percent, feed prices up 95 percent, and seed prices up an average of 163 percent. Even fertilizer prices, which had changed very little during the 1960's, increased 91 percent.

6. AGRICULTURAL CREDIT

Farmers have expanded their use of credit rapidly in the last quarter century to finance purchases of land, equipment, and livestock; to cover operating expenses; and to increase the size of their farms. Total farm debt (including Commodity Credit Corporation loans) at the beginning of 1979 was $137 billion, more than two and one-half times the 1970 level. Wise use of credit has played a major part in the growth of agricultural productivity. Many of the heaviest users of farm credit have made the greatest gains in both equities and incomes.

Farmers have sharply increased use of both farm real estate loans, which are secured by a lien or mortgage on farmland or real property, and nonreal estate loans. Real estate loans ordinarily are used to purchase farmland or make major capital improvements to farm property. They may also be used to refinance existing debts and particularly to consolidate short-term debts.

Farm debt on real estate loans totaled $72.2 billion on January 1, 1979. Institutional lenders, such as Federal land banks of the private Farm Credit System, life insurance companies, commercial banks, and the Farmers Home Administration (Federal Government lender) hold nearly two-thirds of the farm mortgage loans. Individuals and other unclassified lenders hold the remainder.

Many of the individuals supplying farm credit are the sellers of farmland. It can be to the advantage of the buyer and the seller to finance the transfer of farm property that way. The down payment is often less and the interest rate on the balance is usually lower than with regular institutional lenders. The seller collects the sales price of the land plus the interest over a period of years, which provides him an investment and a prolonged income. Sellers supplied 36 percent of funds for farmland purchasers in 1978. The Federal land banks, second most important supplier, furnished 31 percent.

Farm loans (excluding CCC loans) not secured by farmland amounted to $60.0 billion at the beginning of 1979. These funds are used for operating and living expenses; to buy equipment, motor vehicles, and livestock; to make minor improvements to farm property; and for many other purposes. Institutional lenders such as commercial banks, production credit associations of the private Farm Credit System, and the Farmers Home Administration hold about 85 percent of such loans. Merchants, dealers, individuals, and other lenders hold the other 15 percent.

The repayment periods for nonreal estate farm loans vary widely but are usually related to the loan purpose. Loans for ordinary operating and living expenses are usually repaid within 1 year while loans for purchases of large machines, which may require outlays of $20,000 or more, often require 5 to 7 years to repay.

Table 5.—Farm debts, 1940, 1950, 1960, 1970, and 1977–78

	Farm debt outstanding, January 1					
	1940	1950	1960	1970	1978	1979
	Billion dollars					
Real estate debt						
Federal land banks	2.0	0.9	2.3	6.7	21.4	24.6
Life insurance companies	1.0	1.2	2.8	5.7	8.8	10.2
Banks	0.5	0.9	1.5	3.5	7.8	8.6
Farmers Home Administration	0.1	0.2	0.7	2.3	4.0	4.1
Individuals and others	2.2	2.3	4.7	11.0	21.7	24.7
Total	6.6	5.6	12.1	29.2	63.7	72.2
Nonreal estate debt						
Banks	0.9	2.0	4.8	10.3	25.7	28.3
Production credit associations[1]	0.2	0.4	1.4	4.5	13.9	15.5
Farmers Home Administration	0.4	0.4	0.4	0.8	3.1	5.8
Individuals and others[2]	1.5	2.3	4.9	5.3	8.4	10.4
Total	3.0	5.2	11.5	21.2	51.1	60.0
Commodity Credit Corporation	.4	1.7	1.2	2.7	4.5	5.2
Total	10.0	12.5	24.8	53.0	119.3	137.4

[1] Includes loans to other financial institutions (OFI's).

[2] Includes Small Business Admin. loans.

7. THE BALANCE SHEET

Farmers' asset and equity values grew to record levels in 1978. On January 1, 1979, assets totaled $820.2 billion while farm debt amounted to $137.5 billion, leaving equities of $682.7 billion. Both assets and equities were more than double their 1973 values.

The value of farm real estate, which accounts for three-fourths of farm assets, rose 14 percent during 1978. On a per acre basis, farmland value rose from an average of $489 to about $559. At the beginning of 1979, the average value of farm real estate per farm was $227,400; 10 years earlier it was $69,700 per farm.

Physical assets other than farm real estate, which make up about one-fifth of total farm assets, rose sharply in 1978, mainly because of increases in cattle prices, to total $182.2 billion on January 1, 1979.

Farmers' financial assets amounted to about $38.5 billion as 1979 began, a gain of $2.3 billion over a year earlier. Farmers' financial assets tend to change more slowly than physical assets from one year to the next, usually gaining from 4 to 6 percent.

Farm debt, including Commodity Credit Corporation loans, increased to $137.5 billion on January 1, 1979 from $119.3 billion a year earlier, a rise of 15 percent. This was about the average increase for the last 5 years. Farm debt is roughly one-half real estate debt (farm mortgage) and half nonreal estate debt.

At the beginning of 1979, farm debt amounted to about 17 percent of farm assets, the highest ratio since 1941, but still relatively low when compared with other industries. Of course, some farmers are much more heavily in debt than these averages indicate, while others have little or no indebtedness.

Proprietors' equity, the difference between farmers' assets and debts, advanced 15 percent in 1977. The $89 billion increase was record high.

Various surveys have indicated that farmers with the larger annual sales also have higher debt to asset ratios than smaller scale farmers. This suggests that farm debt can serve as a useful tool in expanding the farm firm. The rapidly rising asset and debt values are a measure of the large amount of capital needed for operating expenses and capital by modern farming.

8. FARM POWER

Substitution of machinery for labor is one of the main reasons for the rapid strides in farm output per man-hour in recent years. Farm jobs that required the work of many people and several days can now be done by fewer people in a fraction of the time.

As farms increase in size and as machinery is improved, use of more power becomes both feasible and essential. Average horsepower per tractor on farms, for example, is continuing its upward trend, rising to 56 at the beginning of 1979 from 38 just 12 years earlier. This average included many tractors that were several years old. The average horsepower of tractors purchased has increased dramatically—from 55 in 1963 to over 100 by 1977. One of the latest innovations is large 4-wheel-drive tractors capable of pulling unusually heavy equipment.

Farm machinery and motor vehicles on farms were valued at $84.3 billion at the beginning of 1979, about 10 percent of the value of all farm assets. Excluding nonfarm use of autos and trucks, the total value was $76.3 billion, more than double that of 10 years ago.

Farmers spent $12.0 billion in 1978 for motor vehicles and farm machinery for farm purposes, $1.5 billion more than in 1977. Farmers' expenditures in 1978 for autos for farm use were $0.5 billion; expenditures for other farm machinery, such as grain combines, corn pickers, and haying equipment, came to $6.4 billion during 1978.

Since farm equipment and motor vehicles are relatively expensive and many get very heavy use, the depreciation absorbed annually by farmers on such items amounts to a tidy sum. During 1978, tractors depreciated about $2.7 billion, trucks $1.6 billion, and autos $0.5 billion.

Operating expenses for farm equipment and motor vehicles add to an impressive total. Farmers spent $4.6 billion for fuel and oil to operate their machinery in 1978, and paid $4.6 billion for repairs.

Table 6.—Farmers' assets, debts, and equity, 1940, 1950, 1960, 1970, and 1979

Item	1940	1950	1960	1970	1979
	Billion dollars				
Assets					
Real estate	33.6	77.6	137.2	215.8	599.5
Physical assets other than real estate	15.1	41.1	54.9	76.3	182.2
Financial	4.3	15.8	18.1	22.8	38.5
Total	53.0	134.5	210.2	314.9	820.2
Debts					
Real estate	6.6	5.6	12.1	29.2	72.3
Nonreal estate	3.0	5.1	11.6	21.1	60.0
CCC	.4	1.7	1.1	2.7	5.2
Total	10.0	12.4	24.8	53.0	137.5
Equity	42.9	122.3	185.8	261.9	682.7

9. FARM MACHINERY

Machinery has become an integral part of every farming operation. Tractor-towed and tractor-powered units and self-propelled harvesting machinery are now common and are steadily being improved. Instead of having to take a ripened crop to a thresher, picker, or baler, the machines now go to the crop. Work capacity of the equipment has been expanded, and at the same time the health and comfort of the operator has received greater attention. The hot, dusty, and noisy harvesters have been replaced by machines with air-conditioned, dust-free, glassed-in cabs.

Even crops that traditionally have required extensive hand labor operations are fast becoming mechanized. Machines that efficiently harvest some types of tobacco have been developed and in a few years will probably be in widespread use. Harvesting of farm vegetable crops for processing, including even delicate crops such as tomatoes, is almost totally mechanized. Machines have also taken over many chores in livestock production. Examples are automatic waterers for poultry and livestock, heaters for chick brooders and hog farrowing pens, milk pipeline and cooler systems for dairies and feed mixers.

The great capacity and versatility of much of the farm machinery available greatly increase agriculture's ability to expand production quickly or to shift from one enterprise to another. For example, much of the equipment to produce small grains can be used to produce corn and soybeans.

The increased output per person on farms means that fewer people are needed to produce food and fiber. The farm population has shrunk to about 3.6 percent of the total population, compared with nearly a fourth in 1940 and nearly 9 percent in 1960. In addition, land resources required to produce feed for horses and mules have been released for production of food and fiber, and for production of feed for livestock.

10. LIVESTOCK AND POULTRY FEED

Providing feed and feeding livestock and poultry are important parts of today's agricultural industry, involving not only the farmers and ranches but also the formula feed and grain-processing industry. Only about 30 percent of grains fed are used on farms where grown. The rest moves through commercial channels.

Feed consumption in 1977–78 was less than 1 percent greater than it was in 1965. Forty percent of the feed consumed came from concentrates (high energy feeds), 19 percent from harvested forages (high fiber feeds), and about 41 percent from pasture and range. Of the concentrates fed, over half are now handled or processed as commercial formula feeds.

Technology for production of livestock and poultry has advanced tremendously, particularly in the last 20 years. This includes many innovations in feed formulation and handling. Progress in feed technology has been possible through developments in nutritional knowledge and genetic improvement in both livestock and poultry. Research also has improved methods of housing livestock, and the bulk formulation, mixing, transporting, and distribution of feeds. One result has been to

Table 7.—Kinds and quantities of feed consumed by livestock and poultry, feeding years 1965–66 and 1978–79[1]

Feed materials	1965–66 feeding year	Percent of total	1977–79 feeding year	Percent of total
Grains	1,000 tons	Percent	1,000 tons	Percent
Corn	81,540	17	112,000	23
Other feed grains	32,090	7	25,529	5
Wheat and rye	3,583	1	1,882	—[2]
Protein feeds	31,725	7	40,466	8
Byproduct feeds	9,072	2	9,870	2
Other	2,407	1	3,165	1
Total concentrates	160,418	33	192,912	40
Hay	49,403	10	58,460	12
Other harvested roughages	26,300	5	35,920	7
Pasture	249,144	51	200,883	41
Total roughage	324,847	67	295,263	60
Total, all feeds	485,265	100	488,175	100

[1] Measured in feed units (corn equivalents).

[2] Less than one-half percent.

reduce labor needed on farms. This has been associated with the development of very large poultry and livestock feeding enterprises.

Disease eradication and control are partially related to feed technology. Because of the development of precision metering and mixing equipment, drugs can be safely administered through feed.

Increasing quantities of poultry and livestock are coming from large enterprises built to a great extent around feed manufacturing. Most of these enterprises have a feed mill at or near the feeding location. Some feed their own livestock, but many others also feed livestock belonging to other firms or individuals. Many mills have custom grinding and mixing services and prepare feeds according to specifications of feed purchasers.

11. PESTICIDES AND INTEGRATED PEST MANAGEMENT

The Nation's food and fiber needs are now being met by only a small portion of the total work force of the Nation, thus freeing much of the manpower needed to provide other goods and services that contribute to our high standard of living. This would not be possible without pesticides to control many of the estimated 10,000 species of harmful insects, more than 1,500 diseases caused by fungi, 1,800 different weeds that cause serious economic losses, and about 1,500 kinds of nematodes that cause damage to crop plants. Pesticides are our first line of defense against pests that affect our health and well-being and attack our crops, livestock, pets, and structures.

Department scientists conduct studies to find ways to better utilize pesticides through improved timing and methods of application dosage rates, and use patterns. They conduct research on the development of selective nonpersistent and biodegradable pesticides and on improved formulations of pesticides. Our scientists also develop better methods for detecting and measuring pesticides and their metabolites, and other ways to eliminate or minimize pesticide residues. Department scientists investigate the toxicology, pathology, metabolism, and fate of pesticides in plants, animals, soils, air, and water. Emphasis is given to the determination of residues in organisms, modes of metabiotic pathways of degradation of pesticides, metabiotic products formed, and the disposition of these products.

In cooperation with industry, State, and other Federal staffs, USDA scientists conduct research to develop effective pest control methods that will not pollute the environment. Because pesticides may cause undesirables effects if they are improperly used, the Department encourages the use of effective pest controls that provide the least potential hazard to human health, to livestock, to fish and wildlife, and to beneficial insects. Persistent pesticides are not used in Department pest control programs, when an effective nonresidual method of control is available. When persistent pesticides are necessary, they are used in minimal amounts, applied precisely to the infested area and at minimal effective frequencies.

The Department has expanded its efforts to develop and implement integrated pest management. Integrated pest management is an approach that employs a combination of techniques to control the wide variety of potential pests that may threaten crops. It involves maximum reliance on natural pest population controls, along with a combination of techniques that may contribute to suppression, including cultural methods, diseases that attack specific pests, resistant crop varieties, genetic methods, attractants, augmentation of parasites or predators, or chemical pesticides as needed.

Department scientists are conducting research on the various components of integrated pest management to improve their use and application. They study farming practices that might weaken the pest's environment or improve that of its natural enemies. These investigations embrace land preparation and cultivation, crop rotations, fallows, timing of planting and harvesting, and timing of irrigation.

Pest-specific diseases are also being studied. These diseases are caused by micro-organisms such as bacteria, viruses, protozoa, fungi, and their byproducts.

Breeding resistant crops has been one of the most successful control techniques for pests other than weeds. Specific varieties are developed by Federal and State scientists and released cooperatively by the U.S. Department of Agriculture and State agricultural experiment stations.

Genetic methods being studied by USDA scientists include the sterilization of insects and their release into a native insect population so that the normal insects mate with sterile insects and do not produce offspring. This method is extremely useful for suppressing low levels of some insect populations over large areas.

Attractants such as sex pherimones are used to lure insects to traps or other devices.

There is little question that the parasites and predators existing in nature are a vital resource for effective pest suppression and management. Without these natural controls, satisfactory insect control, by any single or combination of means, becomes virtually impossible. Scientists are developing techniques involved in carrying out a pest control program based on the release of natural enemies. They continue to import predators and parasites to study their host range and effect on pests in this country. Predators and parasites not only control insects but are also being used to control undesirable weeds and, to some extent, nematodes.

Department scientists are developing ways to harmonize chemical pesticides into integrated pest management systems for various farm commodities. These scientists are studying new methods of pest control such as hormones that regulate the growth, development, and reproduction of insects and other invertebrates. These hormones, occurring naturally in low concentrations at various points in the life cycle of an insect, can disrupt a wide range of body functions when applied in greater quantities or at a different time during the life cycle. Hormones represent a new class of pesticides that have great potential for application in pest management programs because they are narrow spectrum, biodegradable, and relatively safe materials which do not have an adverse impact on the environment.

The Department has recently undertaken a national pesticides assessment program designed to provide maximum assistance to the Environmental Protection Agency in carrying out the process of re-registering pesticides as required by the Federal Insecticide, Fungicide, and Rodenticide Act as amended. The primary objective of USDA's Program for Pesticide Impact Assessments is to provide the most objective and accurate information available for defining and evaluating the benefits of selected pesticides having critical agricultural and forestry uses. Inherent in this objective is the provision for a single, uniform approach to obtain information from the agricultural system, which includes Federal, State, and user group sources. When such data are not available, field trials, surveys, or other work will be carried out to develop the specific required data to meet specific needs of pesticide assessments.

12. FERTILIZER

Commercial fertilizers enable farmers to mantain soil fertility, increase production, and reduce unit costs of crop production through substantially increased yields per acre and per man. In the period 1967-78, fertilizer use declined in only 2 years. High fertilizer prices in 1975 and uncertain income prospects and wet field conditions in early 1978 caused total fertilizer and individual plant nutrient use to decline in both years. Farm consumption of the primary plant nutrients—nitrogen (N), phosphate (P_2O_5), and potash (K_2O)—in the United States rose more than 77 percent from 1967 to the record 1977 year, going from 12.5 million to 22.1 million tons. The decline in use in 1978 reduced consumption to 20.6 million tons. In 1978, nitrogen was 48 percent of total nutrient consumption, while phosphate and potash were 25 and 27 percent, respectively.

Four crops—corn, cotton, soybeans, and wheat—require a major share of fertilizer. These crops use about 55 percent of the nitrogen, 59 percent of the phosphates, and 57 percent of the potash. However, corn uses more than 40 percent of the nitrogen and potash and about 37 percent of the phosphates.

Generally, consumption of plant nutrients is expected to increase, but not as rapidly as in earlier years. Applications rates are beginning to level off as are total acres fertilized.

Mixed fertilizers and bagged fertilizer as a proportion of total fertilizer consumption has continued to decline. In 1967 mixed fertilizer comprised about 60 percent of total consumption, compared with 46 percent in 1978. Dry bagged fertilizers made up 43 percent of total consumption in 1967, but declined to 16 percent in 1978. The proportion of dry bulk and fluid fertilizers increased from 35 to 51 percent and 22 to 33 percent, respectively.

Farmers are using higher analysis fertilizer materials. Average primary nutrient content increased from about 39 percent in 1967 to 45 percent in 1978. Nitrogen content increased the most from about 17 percent in 1967 to almost 22 percent in 1978. Potash content was up 2 percentage points from 1967 to 12 percent, while phosphate content was down slightly to about 11 percent.

II. THE FARMING OPERATION

13. FARMING REGIONS

The 10 major farming regions in the United States differ in soils, slope of land, climate, distance to market, and in storage and marketing facilities. Together they comprise the agricultural face of the Nation.

The Northeastern States—from Maine to Maryland—and the **Lake States**—the northern tier of States bordering on the Great Lakes from Michigan to Minnesota—are the Nation's principal milk-producing areas. Climate and soil in these States are suited to raising grains and forage for cattle and for providing pasture land for grazing. Broiler farming is important in Maine, Delaware, and Maryland. Fruits and vegetables are important to the region.

The Appalachian Region—Virginia, West Virginia, North Carolina, Kentucky, and Tennessee—is the major tobacco-producing region of the Nation. Peanuts, cattle, and dairy production are also important.

Farther south along the Atlantic is the **Southeast Region.** Beef and broilers are important livestock products. Fruits, vegetables, and peanuts are grown in this area. And, of course, there are the big citrus groves and winter vegetable production in Florida.

In the Delta States—Mississippi, Louisiana, and Arkansas—the principal cash crops are soybeans and cotton. Rice and sugarcane are also grown. With improved pastures, livestock prduction has gained in importance. This is a major broiler-producing region.

The Corn Belt, extending from Ohio through Iowa, has rich soil, good climate, and sufficient rainfall for excellent farming. Corn, beef cattle, hogs, and dairy products are the major outputs of farms in the region. Other feed grains, soybeans, and wheat are also important.

Agriculture in the **Northern and Southern Plains,** which extend north and south from Canada to Mexico and from the Corn Belt into the Mountain States, is restricted by low rainfall in the western portion and, in the northern part, by cold winters and short growing seasons. About three-fifths of the Nation's winter and spring wheat is produced in the region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for cattle. Cotton is produced in the southern part.

The Mountain States—from Idaho and Montana to New Mexico and Arizona—provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugarbeets, potatoes, fruits, and vegetables.

The Pacific Region includes the three Pacific Coast States plus Alaska and Hawaii. Farmers in the northern mainland area specialize in raising wheat and fruit; vegetables and fruit and cotton are important in the southern part. Cattle are raised throughout the entire region. And in Hawaii, sugarcane and pineapples are the major crops.

Table 8.—Number of farms (new definition)[1] and land in farms, by States, 1976–79

State	Farms			Land in farms		
	1977	1978	1979[2]	1977	1978	1979[2]
	Number			1,000 Acres		
Ala	58,000	57,000	56,000	13,400	13,200	13,200
Alas[3]	290	290	300	1,670	1,670	1,680
Ariz	5,900	5,800	5,800	40,700	40,600	40,500
Ark	59,000	59,000	58,000	16,900	16,900	16,800
Calif	65,000	62,000	60,000	33,300	32,800	32,300
Colo	27,300	26,900	26,500	38,600	38,300	38,000
Conn	3,800	3,700	3,600	460	460	450
Del	3,300	3,100	3,000	645	630	620
Fla	35,000	35,000	35,000	14,000	13,900	13,800
Ga	56,000	55,000	54,000	15,200	15,500	15,700
Haw	3,600	3,700	3,700	2,290	2,290	2,290
Idaho	23,600	23,400	23,300	15,400	15,400	15,400
Ill	111,000	109,000	107,000	28,800	28,700	28,700
Ind	91,000	90,000	89,000	16,900	16,900	16,900
Iowa	125,000	123,000	121,000	34,100	34,000	34,000
Kans	74,000	73,000	72,000	48,500	48,300	48,200
Ky	103,000	99,000	96,000	14,500	14,500	14,400
La	35,500	35,500	35,000	10,300	10,400	10,300
Maine	7,200	7,400	7,600	1,630	1,640	1,640
Md	16,100	16,100	16,000	2,820	2,815	2,805
Mass	5,000	4,800	4,800	660	650	650
Mich	68,000	65,000	63,000	11,200	10,800	10,600
Minn	104,000	104,000	104,000	30,300	30,300	30,300
Miss	61,000	56,000	53,000	15,000	14,800	14,500
Mo	122,000	120,000	118,000	32,300	32,300	32,300
Mont	22,300	22,000	21,700	62,100	62,100	62,000
Nebr	66,000	65,000	63,000	47,900	47,900	47,800
Nev	2,000	2,000	2,000	8,990	8,990	8,990
N H	2,800	3,000	3,000	570	580	580
N J	7,500	7,600	7,500	990	990	990
N Mex	11,600	11,400	11,200	46,900	46,800	46,700
N Y	47,000	46,000	45,000	10,200	10,200	10,000
N C	101,000	100,000	99,000	12,400	12,400	12,400
N Dak	41,000	41,000	41,000	41,690	41,690	41,690
Ohio	99,000	98,000	97,000	16,500	16,400	16,300
Okla	74,000	73,000	73,000	35,000	35,000	35,000
Oreg	30,000	30,000	30,000	18,750	18,700	18,650
Pa	63,000	61,000	59,000	9,100	9,000	8,900
R I	640	660	670	63	63	63
S C	36,000	36,000	35,000	6,700	6,600	6,500

Table 8.—Number of farms (new definition)[1] and land in farms, by States, 1976–79—Continued

State	Farms			Land in farms		
	1977	1978	1979[2]	1977	1978	1979[2]
	Number			1,000 acres		
S Dak	42,500	42,000	41,500	45,450	45,450	45,450
Tenn	98,000	96,000	94,000	13,900	13,800	13,700
Tex	166,000	163,000	159,000	139,300	139,000	138,700
Utah	12,400	12,300	12,200	12,850	12,850	12,800
Vt	6,000	6,000	5,900	1,750	1,750	1,740
Va	60,000	60,000	59,000	9,900	9,800	9,700
Wash	32,500	33,500	33,000	16,000	16,100	16,100
W Va	19,700	19,600	19,500	4,220	4,200	4,180
Wis	97,000	96,000	95,000	18,900	18,800	18,700
Wyo	7,500	7,300	7,200	35,100	35,100	35,100
U S	2,409,130	2,370,050	2,330,070	1,054,798	1,052,018	1,048,768

[1] Places with annual sales of agricultural products of $1,000 or more.

[2] Preliminary.

[3] Exclusive of grazing land leased from U.S. Government, Alaska farmland totals about 70,000 acres.

14. FARMS AND LAND IN FARMS

The United States had 2,376,050 farms in 1978, less than 2 percent fewer than in 1977. The estimate for 1978 indicates another small loss and continues the downward trend that started in 1936.

Land in farms continues to decline slowly, with the total of 1,082 million acres in 1978 slightly less than a year earlier. A further small decline of 3.2 million acres is estimated for 1979. Farms averaged 444 acres in size in 1978, 6 acres more than in 1977. The estimate for 1979 is 450 acres.

Over the last decade, total land in farms has declined 4 percent, with some of the loss resulting from urbanization and highway construction. In the same period, the number of farms fell 13 percent. Reflecting these changes, average size of farms rose 10 percent.

15 RISE OF U.S. PRODUCTION

Farmers in the United States produce 2-1/2 times more per manhour of work than in 1960 and over 10 times as much as in 1930. Although large acreages were held out of crop production between 1960 and 1970, total U.S. farm output increased as fast as U.S. population. During most of the 1970's acreage has been restored to production and output has continued to increase, although at a slightly slower rate than during the 1960's.

An annual increase in farm production has come to be taken for granted, but in the early decades of this century farm production was

Table 9.—Agricultural productivity

Year	U.S. population (July 1)	Index of total farm output (1967 = 100)	Index of output per man-hour (1967 = 100)	Crops harvested
	Millions			Million acres
1930	[1]123.1	52	16	369
1940	[1]132.1	60	20	341
1950	151.7	74	34	345
1955	165.3	82	45	340
1960	180.7	91	65	324
1965	194.3	98	89	298
1970	204.9	101	115	293
1975	213.5	114	152	336
1976	215.1	117	162	337
1977	216.8	121	173	344
1978	218.5	121	183	336
1979	220.3	125	183	348

[1] Includes 48 States.

almost on a treadmill. Agricultural production in the United States remained virtually unchanged from 1910 to 1930. It rose an average of 1.4 percent annually in the 1930's, 2.1 percent in the 1940's, 2.1 percent in the 1950's, 1.0 percent in the 1960's; since 1970 it has had an average annual increase of 2.4 percent.

The population of the United States is expected to be about 233 million in 1985. The 1985 gross national product (value of all goods and services produced by the economy) is projected to increase in real terms by about 25 percent over 1978. In 1985, domestic and export demand for agricultural products is expected to be about 10 percent more than in 1979. To meet this demand alone, U.S. agricultural production must increase at an average annual rate of about 1 percent.

All the evidence indicates that U.S. agriculture can maintain this rate of yearly increase in productivity—and attain even higher rates, if necessary—during the next 10 to 15 years.

16. FARM INCOME[1]

U.S. farmers earned a total of $62 billion in family income from farm and off-farm sources in 1978. Their farming operations netted $27.9 billion (after adjusting for changes in commodity inventories) for their labor, capital, and management. This was an increase of 41 percent from 1977. Income from off-farm sources totaled $34.3 billion in 1978, compared with $31.9 billion in 1977.

---

[1] For an explanation of farm income concepts (gross, net, expenses, etc.) see the appendix.

Farm operator families earned nearly 60 percent of their income from off-farm sources during the last several years. Nearly all farm operator families had some off-farm income, but the smaller the farm, the higher the proportion of off-farm income. Those on farms selling less than $20,000 in farm products per year averaged 85 percent of total family income from off-farm sources. Families with the largest farms—those selling $100,000 or more in farm products per year—averaged only 20 percent of total income from off-farm sources.

Gross income from farming in 1978 was a record $126 billion, a rise of $17.5 billion from the previous year. But as a result of rising costs, net income from farming increased only $8.1 billion.

The record gross income for 1978 reflected an increase of 16 percent in cash receipts from farm marketings. Direct Government payments were up significantly from $1.8 billion in 1977 to $3.0 billion in 1978.

The volume of farm products marketed in 1978 was up less than 1 percent. Prices farmers received for their products averaged 14.8 percent higher in 1978 than as a year earlier. Prices for livestock and livestock products averaged 24 percent higher, while crop prices were up about 5 percent. Receipts from marketings of livestock and products were up $11.6 billion and crop sales were $3.9 billion higher than in 1977, with the combined total of $111.0 billion.

Ranked on the basis of total cash receipts from farm marketings in 1978, California was first with $10.4 billion, Iowa second with $8.2 billion, and Texas third with $7.5 billion. The other 7 States in the top 10 (by order of cash receipts from marketings) were Illinois, Minnesota, Nebraska, Kansas, Wisconsin, Missouri, and Indiana. In 1978, the top 10 States accounted for more than half of total cash receipts from farm marketings, with the top 5 States accounting for over one-third. Compared with the top 10 States, all of which had over $3.4 billion in marketing receipts, Rhode Island had only about $30 million in marketing receipts and Alaska about $12 million.

The per capita disposable personal income of farm residents was up about $1,000 in 1978. The ratio of farm to nonfarm per capita disposable personal income increased significantly for the year. The ratio had fallen from the all time high of 110.2 percent in 1973 to 93.5 percent in 1974, 88.4 percent in 1975, and 77.7 percent in 1976, before rising to 81.6 percent in 1977, and 90.6 percent in 1978.

17. FARMS BY SALES CLASSES

About nine-tenths of all farm products going to market are produced on farms with gross sales of $20,000 or more per year. This upper income group of 831,000 farms makes up most of the commercial agricultural economy of the United States. The operators of these farms do the buying and selling that turn the wheels of an enormous agricultural business and food and fiber marketing complex.

Farms selling $100,000 or more represented about 6 percent of total farm numbers in 1977. Their net income before inventory adjustment averaged $38,310. In the aggregate they received 31 percent of the net income from farming. Farms selling $40,000 to $99,999 worth of agricultural products in 1976—13 percent of all farms—received 32 percent of net farm income. Farms with sales of $20,000 to $39,999 made up 12 percent of all farms and had net farm incomes amounting to 16 percent of the total, an average per farm of $9,990.

These top sales classes accounted for $88.8 billion in cash receipts (including direct Government payments) of the $99.4 billion for all farms in 1977. The top sales groups comprised 31 percent of all farms, accounted for 89 percent of the cash receipts and 79 percent of net farm income.

The number of such farms more than doubled from 1960 to 1977. Farms grossing less than $20,000 yearly sales declined by 48 percent.

The $5,000 to $9,999 sales group had cash receipts of $2.7 billion in 1977, which was 2.7 percent of the national figure. Net income was $814 million, or 4.0 percent. Per farm, they averaged $2,700. This group made up 11.2 percent of all farms.

Cash receipts for the $2,500 to $4,999 class (11.2 percent of all farms in 1977) were $1.4 billion (1.4 percent). Net income totaled $459 million, or 2.3 percent. The group averaged $1,510 per farm.

In 1977, the average net income from farming of farms in the lowest sales class (under $2,500) was $1,520. Many of these farms have substantial off-farm incomes with the group averaging $15,077 from such sources during 1977. Many are part-time farms. Their operators depend upon nonfarm work for a substantial part of their income, or they are retired or semiretired and occupy farms primarily as residences. Other farms in this sales class are subsistence farms whose operators and families are underemployed and live below the poverty level of income.

These 958,000 farms, or 35 percent of the total, received 7.2 percent of the $20.1 billion net income from farming in the United States in 1977.

18. FAMILY-CONTROLLED FARMING

A family-controlled farm business is much like any other business in which an individual or several members of a family own a part or all of the assets and make most of the business decisions. Unlike the business organizations in which management is hired by stockholders, farm businesses are predominantly closely held; ownership and management are not separated.

Table 10.—Average income per farm, 1977

Value of sales	Number of farms	Net farm income before inventory adjustment	Off-farm income	Total income including nonmoney income from farm food and housing
	Thousands	Dollars	Dollars	Dollars
All sales classes	2,706	7,439	11,596	19,035
$100,000 and over	162	38,310	9,636	47,946
$40,000 to $99,999	348	18,502	6,011	24,513
$20,000 to $39,999	321	9,993	6,956	16,949
$10,000 to $19,999	311	4,987	9,466	14,453
$ 5,000 to $ 9,999	302	2,696	12,179	14,875
$ 2,500 to $ 4,999	304	1,508	14,559	16,067
Less than $2,500	958	1,518	15,077	16,595

Family businesses, whether engaged in farming or some other business activity, can be organized in three different ways. The most common is the sole proprietorship. In this form of business organization, an individual or a married couple is responsible for operating the business. Of all farms with sales of 2,500 or more reported in the 1974 Census of Agriculture, 89 percent were sole proprietorships.

The partnership is the next most important form of business organization for farm businesses. About 9 percent of the farms were such businesses. Typically, partnerships include a parent and one or more children or other close relatives. Each member of the partnership contributes some of the capital, shares in management, and shares in earnings or losses in proportion to his or her contribution. Farm businesses organized as partnerships tend to be larger than sole proprietorships because the resources of several individuals can be combined, and additional labor and management are provided by the partners.

The third form of business organization is the corporation, which has a legal identity apart from its shareholders. Any business can be incorporated under the laws of the State in which the organizers choose to file articles of incorporations. Because it is a separate legal "person," it can conduct business in the name of the firm, it provides limited liability to its shareholders, and it can continue to exist even though one or more shareholders may die. Shares in the business may be transferred by sale or gift and a different set of tax laws apply than for sole proprietorships and partnerships.

According to the 1974 Census of Agriculture, there were 28,656 farms operated by corporations. These accounted for about 2 percent of all farms.

Most farming corporations had 10 or fewer shareholders and hence were closely-held family-owned businesses. The less than 2,000 corporate farms with more than 10 shareholders accounted for about 5 percent of total sales of farm products. Sales of these larger corporate farms came mostly from fed cattle, poultry, and fruits and vegetables.

19. LAND TENURE

Land tenure describes the relationship of the farm operator to the land operated. The major land tenure categories in this country are (1) full owners—those who own all of the land they operate, (2) part-owners—those who own and rent land they operate, and (3) tenants—those who rent all of the land they operate.

In 1974 (the latest available Census data) about 2,314,000 farmers operated about 1,017 million acres of land in farms. Full owners (61.5 percent of all farm operators) owned 392.8 million acres but only operated 359.4 million acres, renting the balance to other farm operators. The 628,000 part owners operated 535.3 million acres, about 278.5 million acres being owned and operated by them with 256.8 million acres being rented. Part owners own an additional 12.3 million acres which they rent to other operators. Tenant operators, 11.3 percent of all farm operators, operated about 122.4 million acres.

The number of farm operators has been declining since the peak of 6,812,000 in 1935. This trend is continuing but the decline in recent years does not appear to be as precipitous as in earlier years. Part owners are becoming more important as a tenure class as measured by an increasing proportion of the number of farms, acres in farms, and value of products sold. A large adjustment is continuing in the tenant class. In 1974, 11.3 percent of all farms were tenant operated compared to 42 percent in 1935. Despite considerable decline in the number of farms and shifting proportions amoung the tenure classes, farm operators as a whole continue to own about two-thirds and rent about one-third of the land they operate.

Rental agreements vary widely but two types are readily identified, cash and share leases. Under cash leasing, the most common variation is for a fixed cash payment from the tenant to the landlord for the use of the land. Typically, most farming decisions are then made by the tenant. Share leases, which may involve crops, livestock, or both, are more numerous than cash leases, and like cash leases, may be quite flexible. Tenants combine their assets (labor and capital) with the landlords' assets (land and capital) to produce a product which is shared to compensate the contribution each makes. The share each receives varies considerably based on the product grown, quality of the respective assets, local custom and so on. Often variable costs of production are shared in the same proportion as output.

Under crop-share arrangements, the landlord typically pays for one-third or one-half of the seed, fertilizer, and certain other production expenses and receives a corresponding share of the crops. He also

Table 11.—Cash receipts from farm marketings, 1977

State	Total	Livestock and livestock products	Crops	The five leading commodities ranked by cash receipts				
	Million dollars							
Alabama	1,496	927	569	Broilers	Cattle, Calves	Eggs	Soybeans	Peanuts
Alaska	11	4	7	Grnhse, Nursry	Dairy prod.	Hay	Potatoes	Eggs
Arizona	1,198	509	689	Cattle, Calves	Cotton lint	Dairy prod.	Hay	Lettuce
Arkansas	2,469	1,175	1,294	Soybeans	Broilers	Rice	Cattle, Calves	Cotton lint
California	9,370	2,914	6,456	Dairy prod.	Cattle, Calves	Cotton lint	Grapes	Tomatoes
Colorado	2,060	1,499	561	Cattle, Calves	Wheat	Corn	Dairy prod.	Hay
Connecticut	234	130	104	Dairy prod.	Eggs	Grnhse, Nursry	Tobacco	Cattle, Calves
Delaware	261	180	81	Broilers	Soybeans	Corn	Dairy prod.	Hogs
Florida	2,626	746	1,880	Oranges	Cattle, Calves	Grnhse, Nursry	Dairy prod.	Tomatoes
Georgia	2,194	1,234	960	Broilers	Peanuts	Eggs	Cattle, Calves	Hogs
Hawaii	325	65	260	Sugarcane	Pineapples	Dairy prod.	Cattel, Calves	Grnhse, Nursry
Idaho	1,170	476	694	Cattle, Calves	Potatoes	Wheat	Dairy prod.	Hay
Illinois	5,792	1,872	3,920	Corn	Soybeans	Hogs	Cattle, Calves	Dairy prod.
Indiana	3,239	1,266	1,973	Corn	Soybeans	Hogs	Cattle, Calves	Dairy prod.
Iowa	7,065	4,300	2,765	Hogs	Cattle, Calves	Soybeans	Corn	Dairy prod.
Kansas	3,849	2,224	1,625	Cattle, Calves	Wheat	Hogs	Corn	Sorghum grain
Kentucky	1,806	741	1,065	Tobacco	Cattle, Calves	Dairy prod.	Soybeans	Corn
Louisiana	1,257	406	851	Soybeans	Cattle, Calves	Rice	Cotton lint	Dairy prod.
Maine	418	263	155	Potatoes	Eggs	Broilers	Dairy prod.	Apples
Maryland	657	428	229	Broilers	Dairy prod.	Corn	Soybeans	Cattle, Calves
Massachusetts	214	105	109	Dairy prod.	Grnhse, Nursry	Eggs	Apples	Cranberries
Michigan	1,824	841	983	Dairy prod.	Corn	Cattle, Calves	Dry beans	Hogs
Minnesota	4,323	2,239	2,084	Dairy prod.	Cattle, Calves	Soybeans	Corn	Hogs
Mississippi	1,714	796	918	Soybeans	Cotton lint	Cattle, Calves	Broilers	Eggs
Missouri	2,870	1,677	1,193	Cattle, Calves	Soybeans	Hogs	Dairy prod.	Eggs
Montana	957	514	443	Cattle, Calves	Wheat	Barley	Hay	Dairy prod.
Nebraska	3,980	2,256	1,724	Cattle, Calves	Corn	Hogs	Wheat	Sorghum grain

Nevada	147	101	46	Cattle, Calves	Dairy prod.	Hay	Potatoes	Alfalfa
New Hampshire	79	55	24	Dairy prod.	Eggs	Apples	Grnhse, Nursry	Cattle, Calves
New Jersey	351	99	252	Dairy prod.	Grnhse, Nursry	Eggs	Tomatoes	Soybeans
New Mexico	791	569	222	Cattle, Calves	Cotton lint	Dairy prod.	Hay	Wheat
New York	1,725	1,200	525	Dairy prod.	Cattle, Calves	Grnhse, Nursry	Eggs	Apples
North Carolina	2,622	1,068	1,554	Tobacco	Broilers	Hogs	Dairy prod.	Eggs
North Dakota	1,539	483	1,056	Wheat	Cattle, Calves	Barley	Dairy prod.	Potatoes
Ohio	2,794	1,157	1,637	Soybeans	Corn	Dairy prod.	Cattle, Calves	Hogs
Oklahoma	1,926	1,160	766	Cattle, Calves	Wheat	Dairy prod.	Cotton lint	Peanuts
Oregon	1,034	356	678	Cattle, Calves	Wheat	Dairy prod.	Potatoes	Grnhse, Nursry
Pennsylvania	1,903	1,303	600	Dairy prod.	Mushrooms	Cattle, Calves	Eggs	Grnhse, Nursry
Rhode Island	26	11	15	Grnhse, Nursry	Dairy prod.	Potatoes	Eggs	Hogs
South Carolina	784	277	507	Tobacco	Soybeans	Cattle, Calves	Dairy prod.	Hogs
South Dakota	1,610	1,117	493	Cattle, Calves	Hogs	Wheat	Dairy prod.	Corn
Tennessee	1,370	676	694	Soybeans	Cattle, Calves	Dairy prod.	Tobacco	Hogs
Texas	6,910	3,525	3,385	Cattle, Calves	Cotton lint	Sorghum grain	Dairy prod.	Corn
Utah	363	267	96	Cattle, Calves	Dairy prod.	Hay	Turkeys	Sheep, Lambs
Vermont	267	245	22	Dairy prod.	Cattle, Calves	Eggs	Apples	Maple prod.
Virginia	1,004	560	444	Dairy prod.	Tobacco	Cattle, Calves	Broilers	Peanuts
Washington	1,708	508	1,200	Wheat	Dairy prod.	Apples	Cattle, Calves	Potatoes
West Virginia	148	105	43	Dairy prod.	Cattle, Calves	Apples	Broilers	Turkeys
Wisconsin	3,152	2,556	596	Dairy prod.	Cattle, Calves	Hogs	Corn	Potatoes
Wyoming	452	380	72	Cattle, Calves	Sheep, Lambs	Sugarbeets	Wheat	Hay
United States	96,084	47,565	48,519					

pays the real estate taxes, maintains buildings, and pays for permanent improvements to the land. The renter may also pay cash rent for hay or pasture land, or for the use of buildings in addition to a share of the crops.

Under cash rental, the renter pays a fixed dollar amount per acre or for the entire tract of farm, pays for all operating expenses, and keeps all the crops and livestock he produces. The landlord pays the real estate taxes and keeps up the buildings.

Under the livestock-share rental arrangements, the landlord and tenant each jointly own certain classes of livestock and the machinery that are directly associated with the livestock enterprise, and share operating expenses and net income, most frequently on a 50–50 basis.

20. FARMLAND OWNERSHIP

In 1974, 2,062,000 farm operators owned 686.6 million of the 1,017 million acres of land in farms. Results of a 1974 survey show there are about 1,500,000 nonoperator landlords. Little is known about these landlords who own 330.4 million acres of land in farms which is rented to farm operators. It is estimated, based on 1969 proportions, that 268 million acres are owned by nonoperator landlords who are individuals, partnerships, and estates; 17 million acres are owned by nonoperator corporations; and 45.4 million acres of land rented to farm operators is Federal, State, or Indian-owned land. In addition to the land in farms, about 270 million acres in grazing districts are rented on an animal unit/month basis and are not counted as part of the land in farms and ranches.

Corporations, mostly family held, which operate farms owned about 64 million acres of the land in farms in 1974.

Foreign persons, including corporations, partnerships, and other legal entities, are required under the Agricultural Foreign Investment Disclosure Act to report their holdings of U.S. agricultural land. Summarization of the first reports under the Act tend to confirm that only about 1 percent of the farmland is foreign owned. Economic conditions in recent years have increased the attractiveness of U.S. farmland as an investment by foreigners. In areas where they have the highest participation in the land market, foreigners acquire 4 percent of the annual turnover. For the nation as a whole, foreigners acquire from 1 to 4 percent of the annual turnover.

21. CONTRACT FARMING AND VERTICAL INTEGRATION

A contract to produce and deliver a farm commodity is basically similar to the contractual arrangements that are widely used in industry. One firm, in this case a farmer, agrees to plant, care for, and deliver the production from a given acreage of peas to the canning plant. Or he agrees to care for a specified number of broilers, hens, or turkeys and turn over the birds or eggs to the processing or marketing firm.

The contractor may specify the variety of seed to be used, the particular strain of broilers or laying hens, the kind of fertilizer or feed to be used, and other specific practices the producer must follow. The contractor may go even further and provide all the inputs needed, and assure the producer a guaranteed minimum for his labor and use of his buildings and equipment.

Contracts involving farm products can range all the way from the above type of contract to one in which the farmer simply agrees in advance to sell a certain amount of a product to a particular buyer. The price may be determined in advance or it may be based upon a formula which takes into account the going market price at the time of delivery.

A high percentage of the production of broilers, eggs, turkeys, sugarbeets, fruits and vegetables has long been involved in various kinds of contractual arrangements. In recent years the technique has been applied to cattle feeding, hog production, and certain feed crops and forage. Commercial feedlots will feed out the calves raised by cattlemen; a feed manufacturer will make contracts with local farmers to produce feeder pigs or raise market hogs. Commercial feedlots often contract with nearby farmers to raise forage needed in the feedlot or to deliver feedgrains on a regular schedule.

Each party to a contract is seeking some advantage in the arrangement. The producer often receives technical advice, financing for the production period, and is assured a market outlet for his products. The contractor hopes to get a product that better meets his requirements for processing and marketing and that is delivered on a schedule that will permit more efficient use of his plant and labor.

Vertical integration is an alternative to contracts. It is used by input suppliers and processors to achieve control of two or more stages in the production and processing of food products. Broiler processing firms that own hatcheries and feed mills and that engage in direct production (rather than production by contracts) are prime examples of a vertically integrated food system. Canning companies that produce a portion of their crop requirements and cattle feeders who also own slaughter plants are other common examples.

Overall, the extent of contract production and vertical integration did not increase significantly between 1960 and 1970. About 19 percent of total farm production in 1960 was estimated to have been conducted under both forms of coordination and the proportion increased to about 22 percent in 1970. Contract production increased from 15 to 17 percent and vertical integration from about 4 to 5 percent. Sharpest increases in both contracting and vertical integration occurred for eggs and turkeys in the livestock sector, and in contracting for cotton and vegetables for processing. The major change in contract farming since 1970 has been a sharp increase in farmers' use of forward sales contracts in marketing cash grains, oilseeds, and cotton. Contracts were used in producing or marketing an estimated 21 percent of all agricultural commodities in 1974.

III. FOOD MARKETING

22. COST OF FOOD SERVICES AND DISTRIBUTION

The estimated bill for marketing domestic farm foods—which does not include imported foods—was $140 billion in 1978. This covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented slightly more than two-thirds of the $207 billion consumers spent for these foods. The remaining $67 billion represented the payment, or gross return, that farmers received.

The cost of marketing farm foods has increased considerably over the years, mostly because of rising costs of labor, transportation, food packaging materials and other inputs used in marketing, but also because of the growing volume of food and increase in services provided with the food. In 1968, the cost of marketing farm foods amounted to $65 billion. In the past decade the cost of marketing doubled. In 1978, the marketing bill rose 9 percent.

These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1968 to 1978, consumer expenditures for farm foods rose $112 billion. About two-thirds of this increase resulted from an increase in the marketing bill.

The cost of labor is the biggest part of the total food marketing bill. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost $66 billion in 1978. This was 10 percent more than in 1977 and 136 percent more than in 1968. Labor costs have risen rapidly in recent years largely from increases in wages and salaries. Improvements in output per man-hour, or productivity, have slowed significantly since 1970 and offset a very small part of the rise in hourly earnings of food marketing employees.

Between 1968 and 1978, the total number of food marketing workers increased 32 percent. The total number of food marketing workers in 1978 was 6.9 million compared with 5.2 million a decade ago. The growth in employment, however, was largely confined to public eating places.

23. FOOD EXPENDITURES AND PRICES

Total food expenditures, which include imports, fishery products, and foods originating on farms, were $239 billion in 1978, an increase of 10.3 percent from 1977. The average was $1,095 per capita, 8.7 percent above 1977. The increase was less than the 10.5-percent rise in per capita disposable income.

Expenditures for only the food originating on U.S. farms amounted to $280 billion in 1978. Retail food prices (including meals served in restaurants) rose 104 percent during the 1968-78 decade. Prices of food eaten away from home increased somewhat more than retail food prices—108 percent compared with 103.6 percent during 1968-

78. Prices of goods and services, excluding food, in the Consumer Price Index climbed 83 percent during the 10 years. Transportation was up 80 percent; housing, 95 percent; personal care, 75 percent; and medical care, 107 percent.

In general, 1 hour's work in a factory buys more food today than 10 or 20 years ago. Pay for 1 hour's factory labor would buy—

3.1 pounds of round steak in 1978; 2.9 pounds in 1968; 2.2 pounds in 1958, or
7.8 dozen eggs in 1978; 5.7 dozen in 1968; 3.5 dozen in 1958, or
14.1 quarts of milk in 1978; 11.2 quarts in 1968; 9.3 quarts in 1958, or
3.7 dozen oranges in 1978; 3.6 dozen in 1968; 3.3 dozen in 1958.

24. FARM-RETAIL PRICE SPREAD

Food prices include payments for both the raw farm product and marketing services. The farm value or payment for the raw product averaged 39 percent of the retail cost of a market basket of U.S. farm foods sold in food stores in 1978. The other 61 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Both farm values and farm-retail spreads have risen over the years, causing food prices to rise. Farm-retail spreads have increased every year the past 10 years, largely reflecting rising costs of labor, packaging, and other inputs. In 1978, farm-retail spreads widened 8.1 percent. Farmers received about 16 percent more for food commodities in 1978 than they did the previous year. Widening farm-retail spreads continue to push up food costs in 1979. In addition, the farm value is expected to increase about 14 percent in 1979. The share of the food dollar spent in grocery stores represented by the farm value is expected to range from 40 to 41 cents in 1979. This share ranged from 38 to 45 percent during the past decade.

The percentage of the retail price accounted for by farm value varies widely among foods, reflecting differences in production and marketing functions. It is larger for animal products than for crop-based foods. Farm value is a relatively small share of the retail selling price of foods that require considerable processing and packaging. The wide variation in the farm value share among major food groups in the farm food market basket is shown in table 12.

25. PER CAPITA FOOD CONSUMPTION AND NUTRITION

Per capita food consumption during 1978 remained high, falling slightly below the 1977 level. The food consumption index for all foods was 0.2 percent below that of the previous year. The 1978 decline

Table 12.—Farm value as a percentage of retail price for domestically produced foods, 1968 and 1978

Items	1968	1978
	Percent	
Livestock products	54	56
Meats	57	58
Dairy	47	51
Poultry	51	58
Eggs	61	67
Crop products	21	20
Cereal and bakery	16	14
Fresh fruits	35	31
Fresh vegetables	33	32
Processed fruits and vegetables	20	19
Fats and Oils	26	34
Market basket, average	38	39

was due to a 1-percent decrease in livestock-related foods. The crop-related foods index increased 0.75 percent.

Per capita food consumption increased 2.5 percent in the decade ending in 1978. The consumption of foods from crops rose 4.8 percent, while that of foods derived from animals decreased 0.7 percent. The increase in consumption of crop-related foods was in fresh and processed fruits, vegetables, and patatoes. Use of sugar sweeteners and vegetable fats also showed gains. Consumption of cereal products and coffee declined. Among the livestock-related products, consumption of poultry, red meat, and fish was up sharply, while that of eggs and animal fats trended downward during the entire period. Dairy product consumption remained relatively stable

Consumers used 1,445 pounds of food per capita in 1978, 17 pounds more than in 1968. Per capita use of crop products has increased 3.2 percent since 1968, while use of animal products decreased 1.2 percent.

26. TRADE BLOCKS

Over the past decade, regional economic organizations have had a significant impact on world trade in agricultural and industrial products. Regional economic organizations are defined as free trade areas, customs unions, or common markets. Two or more countries which form a free trade area agree to eliminate tariffs on products which originate in their territories. Each member of the free trade area, however, maintains its own tariff schedule for imports from nonmembers.

A free trade area becomes a customs union or common market when the members agree to maintain a common external tariff on imports from nonmembers. In addition, there may be an effort to remove all internal barriers to permit the free flow of labor, capital, goods, and services (even energy).

The European Community (EC), originally composed of Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands and later joined by the United Kingdom, Denmark, and Ireland, is an example of such a common market. The EC began functioning in 1958. By 1968, tariffs affecting the six original member countries had been eliminated. Today, a common external tariff applies to imports from outside countries. A common agricultural policy covering most farm commodities is in effect in an attempt to reconcile differences in national agricultural policies and agricultural price variations.

The influence of the EC now extends far beyond the boundaries of the current nine members. Spain, Portugal, and Greece are in the process of becoming EC members. Fifty-five African, Caribbean and Pacific countries—nearly all of which are former colonies or trust territories of EC countries—have been granted special trade and aid benefits by the EC through the Lomé Convention. Most Mediterranean countries have preferential trade agreements with the EC, while some other countries, such as Canada, have cooperative agreements.

The European Free Trade Association (EFTA) was established in 1960. EFTA was originally formed as a "temporary" organization—a second best alternative to a wide European market. There were seven original members: Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom. Finland joined EFTA as an associate member in 1961; Ireland became a full member in 1970. The importance of EFTA as a trade bloc has diminished since the United Kingdon, Denmark, and Ireland joined the EC in 1973.

In the Western Hemisphere, three major economic groupings have emerged: the Latin America Free Trade Association (LAFTA), established in 1960; the Central American Common Market (CACM), formed in 1961; and the Caribbean Common Market (CARICOM), established in 1973.

Members of LAFTA include Argentine, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela. Five members of LAFTA, the "Andean Group"—Bolivia, Colombia, Ecuador, Peru and Venezuela—also have established the Andean Common Market (ANCOM).

The members of the Central American Common Market are Guatemala, El Salvador, Honduras, Nicaragua, and Costa Rica. CACM is plagued by many problems, the most recent of which are the hostilities in Nicaragua.

The 12 members of CARICOM include former British Caribbean dependencies—Jamaica, Trinidad and Tobago, Barbados, Guyana, Antigua, St. Kitts-Nevis and Montserrat, Dominica, St. Lucia, St. Vincent, Grenada, and Belize.

27. FOREIGN TRADE—EXPORTS

The United States is the world's leading exporter of agricultural products. In 1978, about one-sixth of the world's agricultural exports were shipped from the United States.

The Nation is likely to ship a record $32 billion of agricultural products in fiscal 1979. It is estimated that crops from 1 out of every 3 acres, a total of 113 million acres, will be exported in 1978/79.

The foreign market provides a major outlet for U.S. farm production. More than half of the rice, wheat, soybeans, and cattle hides produced will be exported. Similarly, more than one-third of the tallow and cotton and more than one-fourth of the tobacco and fee grain output will be exported.

U.S. agricultural exports in fiscal 1979 required financing, inland transportation, storage, and ocean transportation for more than 130 million metric tons of cargo.

In fiscal 1979, exports of wheat and flour may total $4.8 billion. Feed grains are likely to total $6.6 billion and soybeans and products $7.6 billion. These commodities accounted for about 60 percent of the total exports of farm products.

Almost all of the $32 billion of agricultural exports in fiscal 1979 represented commercial sales for dollars. About $1.5 billion is moved under Public Law 480 (long-term supply and dollar credit sales) and Agency for International Development (AID) programs.

Although U.S. agricultural exports go to more than 150 countries around the world, 70 percent of those exports were made to only 15 countries in fiscal 1979. Asia ($11.9 billion) surpassed Western Europe as the biggest foreign market. The Asian market included Japan ($4.2 billion), Republic of Korea ($1.5 million), Taiwan ($1.0 million) and China ($1.0 billion). The other market areas were Western Europe ($9.9 billion which included $6.7 billion for the European Community), the U.S.S.R. ($2 billion), Eastern Europe ($1.1 billion), Canada ($1.6 billion), Latin America ($3.2 billion), Africa ($1.7 billion), and Oceania ($140 million).

28. FOREIGN TRADE—IMPORTS

The United States was among the world's six largest importers of agricultural products in 1978. Other large agricultural importers included West Germany, Japan, the United Kingdom, Italy, and France.

U.S. agricultural imports were expected to total over $16 billion in fiscal 1979. Of this amount, imports of supplementary (partially competitive) products would total $10.7 billion. Complementary (noncompetitive) products consist mainly of tropical products such as coffee, crude natural rubber, cocoa beans, bananas, tea, spices, and cordage fiber. About 53 percent of the agricultural imports, including almost all of the complementary items, were duty free.

Agricultural commodities were imported by the United States from more than 150 countries in fiscal 1979, but 75 percent of those imports were from only 25 countries. The largest suppliers of agricultural products to the United States in calendar year 1978 were Brazil ($1.5 billion), Mexico ($1.1 billion), Canada ($743 million), Australia ($727 million), Indonesia ($597 million), and the Philippines ($534 million).

29. BALANCE OF PAYMENTS

A statement of economic transactions involving the exchange of goods, services, and capital claims between a country and foreign countries is called a "balance of payments."

People in the United States pay other countries for imported goods and services. Money also is transferred to foreign countries for economic and military assistance, for investment, private remittances, pensions, and other purposes. The United States also receives money from other countries, mainly in payment for exports and services, mutual defense, investment, and repayments on U.S. Government and commercial loans. When the outflow of money is greater than the incoming money, a deficit occurs. When the amount of incoming money exceeds the outflow, a surplus is said to have accumulated.

Agricultural exports give the United States substantial balance of payments help. During 1960 through 1978, commercial exports of U.S. farm products brought $196 billion back to the United States. In 1978 alone, commercial farm exports totaled $28 billion. Exports under Government programs such as Public Law 480 (Food for Peace) totaled $25 billion for the 19-year period; in 1978 alone, exports under these programs amounted to $1.6 billion. The aggregate net contribution of agricultural exports to the U.S. balance of payments for 1960 through 1978 was $75 billion. The contribution in 1978 was $14 billion.

"Balance of trade" is the difference in value between a country's merchandise exports and imports in a specified period. The balance of trade is called favorable when exports exceed imports and unfavorable when the reverse occurs. From 1874 until the 1970's the United States had a favorable balance in most years. However, the United States has had trade deficits in every year since 1971 except for 1973 and 1975. Another trade deficit was expected in 1979.

IV. AGRICULTURAL SERVICES

30. AGRICULTURAL RESEARCH

Agricultural research provides new knowledge and technology to assure an adequate supply of food and fiber for the Nation's population now and in the future. A basic goal of agricultural research is to establish a high-yielding agriculture that also supports a quality environment and conserves energy.

Research has given farmers more control over nature, increased production, and reduced production risks. Research has led to:

- Genetically improved high-yielding and high-quality pest-resistant varieties of crops.
- Genetically improved livestock with higher reproduction rates.
- Control of livestock diseases and prevention of introduction of exotic diseases.
- Improved crop and livestock management practices.
- Better plant and animal nutrition.
- Improved irrigation equipment, principles, and practices.
- Improved farm equipment and mechanization practices.
- Efficient control of diseases, insects, nematodes, weeds, parasites, and other pests, including control of insects affecting humans and stored products.
- New and better fibers and fabrics.
- More efficient processing, transportation, and marketing of food; development of new uses for crops and of new crops.
- Better nutritional quality in foods and added food safety.
- Improved levels of rural living.
- Sharing of food technology with developing nations which must increase food production.
- Providing support for programs of action and regulatory agencies.
- Keeping U.S. agriculture efficient and competitive in world trade.

The integration of this production technology into compatible and efficient ecosystems for agriculture has created a revolution with far-reaching benefits. Thousands of scientists in dozens of disciplines have contributed to the development of this technology. Funds to support this research are supplied by Federal, State, and private sources.

The responsibility for much of the public segment of the agricultural research and development program lies with the research agencies of the U.S. Department of Agriculture and the land-grant college system of State agricultural experiment stations (SAES). The interrelated and cooperative programs of USDA and SAES cover research at more than 500 locations in all 50 States and in the District of Columbia, Puerto Rico, the Virgin Islands, and Guam.

Current agricultural research priorities are designed to meet the challenge of doubled food production, necessary if populations forecast for the year 2000 are to be fed. These priorities include research on:

- **Photosynthesis.** Scientists estimate that an increase of only 1 percent in photosynthetic efficiency would be of great importance in meeting food production goals.
- **Improving the ability of plants to capture or "fix" nitrogen.** All-out food production could result in a shortage of nitrogen fertilizer and scientists are working to find the best ways to get the most good out of every pound and to improve the ability of certain plants to capture nitrogen from the air.
- **Developing new and improved plant varieties.** Scientists are studying growth processes through the use of cell culture and are trying to improve plants and animals by cellular hybridization techniques and by developing new horomonal or regulator control of plant and animal growth.
- **Improvement of nutritional and other quality characteristics.** High-yielding cereals and legume crops sometimes are deficient in one or more essential amino acids, vitamins, or minerals, or in protein content. Improved quality in feed grains would come close to eliminating the necessity for high protein supplements in animal feed rations, thus releasing protein for other uses.
- **Producing more and better forage.** Research on forage could lead to improving livestock production capabilities of more than 900 million acres of marginal lands. If vegetation can be increased by only 3-fold, this land will support more than twice the number of cattle needed for the entire country.
- **New pest control technology.** Even with today's sophisticated pest control technologies, more research is needed to keep pace with the insects that continue to reduce the potential yield of this country's agricultural commodities by about one-third. The role of insect migration in causing outbreaks is being studied along with the chemistry of host plant resistance to attack, insect pathogens for control of major insect pests, the fate of fungicides in plants and animals, the regulation of insect hormone systems, and the use of behavioral chemicals to increase effectiveness of beneficial insects.
- **Improve animal reproductive efficiency.** Progress is being made toward improved reproductive efficiency of meat and dairy animals, including twinning in cattle and multiple births. The potential for increased reproductive rates is estimated at 100 percent.
- **Energy conservation.** Scientists are working to reduce the amount of energy used in agriculture. In addition to research on photosynthesis and nitrogen fixation, they are trying to increase fertilizer efficiency, and find better methods for drying grain and curing peanuts and tobacco. Minimum tillage, irrigation efficiency,

increased forage production, new uses for solar energy, and methods for converting the biomass to fuels are all being studied.

- **Conserving soil, water, and air.** This involves research aimed at refining the process for composting raw sludge, developing better ways of reclaiming more than 4 million acres disturbed by surface mining, water pollution control, new irrigation technology designed to improve the efficiency of water use, conservation tillage to reduce pollution and save on labor, management of fertilizer so as to improve water use efficiency on rangeland.

Areas to be given special emphasis in 1980 include nutrition research, integrated pest management, efficient and environmentally sound use of natural resources, energy conservation, research to improve small-scale farm production, technology for increasing plant and animal production, and human health and safety.

The number of dollars spent or saved is only one indication of the value of research. No dollar value can be assigned to the worldwide usefulness and worth of scientific research related to agriculture. The added years of human life made possible by proper nutrition, for example, have no price. At the same time, if the growing world population is to have enough to eat, research must find ways to increase production, processing and marketing efficiency of foods while conserving natural resources, protecting the environment, and improving human health.

31. EXTENSION EDUCATION

A Cooperative Extension office is located in nearly all of the more than 3,000 counties in the Nation. There, people can get information on how to operate a better farm business, create a better home, build a better community. County agents are on hand to assist.

These Extension agents have access to the latest in scientific information from State, Federal, and private research centers. They are skilled at translating it into practical, down-to-earth answers to individual problems. Since they also work with many other agencies, they can draw on a wide range of resource material beyond agriculture.

They present information to the public in person, by phone, by mail, at meetings, in newspapers, and on radio and television.

Extension offices serve as off-campus branches of the State land-grant universities. They are part of the unique, three-way Cooperative Extension partnership in which Federal, State, and county governments share in planning and financing educational programs.

The federal partner is the Science and Education Administration of the U.S. Department of Agriculture. The State land-grant universities are headquarters for a staff of specialists in agriculture and natural resources, home economics, nutrition, 4-H youth work, community development, and related subjects. They work closely with county and area agents.

Local people have a strong voice in planning Extension work; many serve on Extension advisory committees and as lay leaders helping to assure priorities for programs that best serve their local needs.

32. FOREST MANAGEMENT

The demand for sawtimber and other forest products is rising much more rapidly than supplies. Use of industrial timber products is at an annual total of 13.3 billion cubic feet. U.S. harvest of industrial roundwood—about 70 percent of which is sawtimber-sized material—is 11.3 billion cubic feet. Forest management programs of the U.S. Department of Agriculture are designed to help meet the rising demand for forest products.

USDA's Forest Service administers 188 million acres of National Forests and National Grasslands. It cooperates with State foresters, private owners of forested lands, and wood processors in providing advice on management and use, assistance to private landowners, and provides research to support these activities. The Agricultural Stabilization and Conservation Service (ASCS), in cooperation with the Forest Service and State forestry agencies, provides cost-sharing with private landowners for woodland management practices. Through such programs as the Agricultural Conservation Program and the Small Watershed Program, USDA further recognizes the importance of America's woodlands in assuring conservation and enhancement of the Nation's natural resources and a quality environment.

America's forest lands now occupy about 740 million acres, one-third of the Nation's 2.3 billion acres of land. The National Forests occupy 183.2 million acres, including 89 million acres, or 18 percent, of the country's 488 million acres of commercial forest land, and contribute 16 percent of the Nation's total annual timber harvest.

Industry owns 14 percent of those 488 million acres, contributing 29 percent of the national timber harvest. Nine percent is in other public lands which provide about 7 percent of the national timber harvest. But, the majority of forest lands in the Nation, 58 percent, are controlled by several million nonindustrial private owners. These private lands contribute 48 percent of the national timber harvest.

In 1977, about 45 percent of the Nation's timber harvest came from the South, 30 percent from the Pacific Coast, and 25 percent from the North and Rocky Mountain areas. The South is expected to be the major timber producer in the future.

Through cooperative programs with the States, USDA provided more than 165,000 assists to woodland owners in fiscal 1978.

Assistance in tree planting, seeding, timber stand improvement, timber sales, and other woodland activities affected some 5.7 million acres of timberland and resulted in the harvest of 225 million cubic feet of wood. State nurseries distributed 655 million seedlings for use in forest and windbarrier plantings; 126.5 million came from Federal nurseries.

The Forestry Incentives Program (FIP) is administered by the Agricultural Stabilization and Conservation Service (ASCS), in cooperation with the Forest Service and State forestry agencies. FIP authorizes the Federal Government to share with private landowners the cost of planting trees and improving timber stands. The Federal share of these costs ranges up to 75 percent. Participation in the program is limited to landowners with a maximum of 1,000 acres of forest land; exceptions can be granted at the discretion of the Secretary of Agriculture for ownerships of up to 5,000 acres. FIP is available in counties designated on the basis of a Forest Service survey of total eligible private timber acreage and acreage potentially suitable for production of timber products. From the beginning of the program in 1975 through fiscal year 1978, woodland landowners entered into 29,730 cost-share agreements with ASCS under FIP. These agreements called for planting trees on 429,075 acres, and for improving stands of forest trees on 477,112 acres.

The annual timber harvests from the National Forest System are carefully calculated to assure continually productive forest lands. In fiscal year 1978 about 10.1 billion board feet of timber were harvested under strict conservation regulations contained in timber sale contracts. Returns from these timber sales were $723.5 million. As provided by law, 25 percent of all National Forest income is returned to the States containing the forest from which the income was derived; in fiscal year 1978 this amounted to $239.3 million. Under the Multiple-Use Sustained Yield Act of 1960, these forests must be managed so as to yield a wide range of other social benefits, including recreation, watershed benefits, livestock grazing, and wildlife habitat.

On National Forest lands, the Forest Service in 1978 planted and seeded 411,300 acres, and improved 420,400 acres of young timber by thinning and release from vegetative competition. On the National Forests, 12,168 wildfires were controlled, and damage was held to 105,738 acres burned. The National Forests and Grasslands are home to more than 4 million big game animals and 70 species of threatened or endangered wildlife. In fiscal 1978, 1.4 million head of cattle and 1.3 million sheep grazed on National Forests and Grasslands under special permits granted to ranch operators. Income in fiscal year 1978 was $11 million from grazing fees, $14.8 million from mineral receipts, and $15.8 million from recreation and user fees.

The Forest Service administers the largest forestry research program in the world. At sites operated by eight forest experiment stations and the Forest Products Laboratory, research projects covering every aspect of forest management, protection, and utilization are under way. Subjects being investigated include forest genetics and cultural practices to increase yield, control of insects and disease, suppression of wildfires and use of fire in timber management, wildlife and fish habitat improvement, recreation, snowpack control and other watershed considerations, environmentally sound harvesting techniques, timber processing techniques to increase yield, use of low quality or residual wood, protection of wood products from natural degradation, improvements to housing through energy conservation or lumber-saving designs, and urban forestry. Research findings are made available to the public through an extensive publication program and the extension efforts of the State and Private Forestry arm to put innovations into practice.

33. FARM CREDIT ADMINISTRATION

The Farm Credit Administration is an independent Government agency that supervises the cooperative Farm Credit System, which obtains its loan funds by selling securities to investors. The Farm Credit System is completely owned and controlled by its users—farmers and their cooperatives. The net worth of the system is now more than $5.3 billion. The system is made up of 12 Federal land banks and their 505 local Federal land bank associations; 12 Federal intermediate credit banks and their 425 local production credit associations; and 13 banks for cooperatives from which farmers' marketing, purchasing, and business service cooperatives obtain loans.

The Farm Credit System provides about 29 percent of the credit used by farmers, and 62 percent of the credit used by their cooperatives. Borrowers from other lending institutions benefit from Farm Credit System operations because other lenders tend to follow the lead of the System in setting the terms on loans.

Owner-members now borrow more than $51.3 billion a year from the cooperative Farm Credit System. They currently are using more than $53.2 billion for credit in outstanding loans from the System.

The Farm Credit Administration operates under a 13-member, part-time policymaking Federal Farm Credit Board. Twelve members of the board are appointed for 6-year staggered terms by the President of the United States. The 13th member is appointed by the Secretary of Agriculture and acts as his representative.

34. CREDIT THROUGH USDA AGENCIES

USDA's Farmers Home Administration (FmHA) has loan authorities for literally any type of project that will build economic strength or improve the amenities of small towns and rural areas. The agency was created to help farmers by making higher risk loans than those that are considered justifiable by other lending agencies. Farm loans continue to occupy a key role in the agency's authorities. In these loans, and in housing loans to individuals, the borrower is expected to refinance his or her FmHA loan with a private lender when able to do so.

Farm ownership loans are designed to help farmers buy farms or land or enlarge farms; construct or repair buildings; improve land; develop, conserve, and make proper use of their land and water resources; establish recreation and nonfarm enterprises to supplement income; and refinance debts.

The maximum farm ownership loan may not exceed $200,000, although FmHA will guarantee loans as high as $300,000 from other credit sources. The interest rate for direct loans from FmHA is based on the rate for current Government borrowing. The repayment term can be up to 40 years. The interest rates and repayment terms for guaranteed loans are negotiated between borrowers and lenders, within FmHA guidelines.

Operating loans are extended primarily to help farmers make needed adjustments and adopt improved farming practices. Funds are advanced for the purchase of equipment, livestock, feed, seed, and fertilizer; for other farm and home operating needs; to refinance chattel debts; to carry out forestry and aquaculture projects; and to develop income-producing recreational enterprises.

Farm operating loans made by FmHA may not exceed $100,000, but again, the agency can guarantee loans to farmers from other credit sources as high as $200,000. Loans are to be repaid over a period not exceeding 7 years, but extensions are sometimes granted. Interest rates are set each year by the U.S. Treasury and the Secretary of Agriculture.

Also, loans to help finance the establishment and operation of farm and nonfarm income-producing projects can be made to individual rural residents under 21 years of age who are enrolled in an organized and supervised program.

Reduced interest rates for ownership and operating loans can be given to limited-resource farmers if they cannot afford to pay the full cost-of-money rates.

Emergency loans and loan guarantees are available to indemnify eligible farmers, ranchers, and oyster planters for losses resulting from designated disasters to help them continue their operations with credit from other sources. These sources include, except for oyster planters, Farmers Home Administration operating and farm ownership loans.

A program of Economic Emergency Loans to be administered by FmHA was established by the Agricultural Credit Act of 1978. It provides up to $4 billion in loans and guarantees to farmers who need help to survive the economic pressures of high production costs and low prices and the general lack of available credit on a national or areawide basis. These loans can be used to refinance existing debts, reorganize or improve operations, or to provide operating capital. Maximum loan is $400,000 and total indebtedness when joined with other FmHA farm loans cannot exceed $650,000. The terms of repayment vary according to purposes of the loans. Annual recurring expenses are to be repaid each year when crops are harvested and sold. Other loans for operating purposes may be repaid in up to 7 years, but under special conditions, a long repayment period can be arranged, but not more than 20 years. Loans for real estate purposes may be scheduled for repayment over 40 years. The interest rates for loans made by FmHA will be based on the cost of Government borrowing. Interest rates for guaranteed economic emergency loans will be negotiated between the borrower and the lender.

In housing, interest rates are determined by rates for current Government borrowing, except that low-income families may qualify for rates as low as 1 percent, and above-moderate income persons for guaranteed loans at rates negotiated with the lender. Loan programs include: (1) Home ownership loans to buy existing residences or build new houses, modernize existing homes, and acquire building sites. Maximum term is 33 years. (2) Rural rental housing loans to provide rental housing for persons with low or moderate income and for persons age 62 or over, can be coupled with rental assistance payments to reduce rents paid by low-income tenants to no more than 25 percent of their income. Maximum repayment period is 50 years. (3) Rural housing repair loans or grants to very-low-income senior citizens and loans to low-income persons to make repairs and remove health and safety hazards. Maximum loan, grant or combination of both is $5,000 and maximum loan term is 20 years. (4) Weatherization loans are made through electric and fuel utility companies. (5) Farm labor housing loans to finance low-rent housing for domestic farm laborers. Interest rate is 1 percent and maximum term is 33 years. Grants not exceeding 90 percent of development cost of farm labor housing projects are available under some conditions. (6) Loans for development of rural homesite areas. (7) Self-help site development loans, and grants to non-profit organizations providing technical assistance to low-income families building homes by self-help method.

Business and industrial loans are made to any legal entity, including individuals, public and private organizations and federally recognized Indian tribal groups, for furthering business and industrial development in rural areas or cities up to 50,000 population with preference given to those with less than 25,000 people. Credit is provided through two channels. For private organizations and individuals, FmHA guarantees loans by private lenders and for public bodies FmHA can make and service the loan. Interest rates for guaranteed loans are determined by lender and borrower consistent with market rate. For private entrepreneurs, if loan must be made by FmHA, interest is computed on cost of Treasury borrowing plus an increment to cover administrative costs. For public bodies borrowing to install community facilities for business and industrial development, the rate is 5 percent. Grants are made to public bodies to help finance development of industrial sites.

Loans are made to public bodies and private nonprofit corporations for rural development projects including irrigation, drainage, other soil and water conservation facilities, and for grazing associations. Loans are amortized up to 40 years at an interest rate based on the rate for current Government borrowing. Financial assistance is available for community facilities, including water and waste disposal systems, for public use in rural areas and towns of up to 10,000 population. Maximum loan term is 40 years and the interest rate is 5 percent. Development grants may be made to pay up to 75 percent of the cost of constructing water and sewer systems. Loans are made to Indian tribes to acquire land within a reservation or Alaskan community for tribal use. These 5 percent loans are repayable in 40 years.

Resource conservation and development loans are made in designated areas. These loans cannot exceed $500,000 and are amortized up to 30 years. Watershed loans are made to finance the local share of costs in projects approved under the Watershed and Flood Prevention Act or in connection with the 11 watershed improvement programs authorized by the Flood Control Act of 1944. They cannot exceed $10 million and are amortized up to 50 years. The interest rate on these loans is determined by the Secretary of the Treasury at the beginning of the fiscal year.

USDA's Rural Electrification Administration (REA), operating under the Rural Electrification Act of 1936, as amended, has made loans of $12.9 billion to about 1,101 rural electric systems in its first 43 years. At the beginning of 1979, these systems were providing electric service to an estimated 29 million rural people through 8.9 million meters on 1.9 million miles of line in 2,600 of the Nation's 3,100 counties. The majority of REA electric borrowers are nonprofit cooperatives. These local systems are repaying their Government loans with interest, on schedule or ahead of schedule.

REA also makes loans to improve and extend telephone service in rural areas under authority of a 1949 amendment to the Rural Electrification Act. More than $3.3 billion in loans had been approved as of January 1, 1979, to 691 commercial companies and 251 cooperatives to finance modern dial telephone service for 4.4 million rural subscribers in 46 States.

An amendment to the Rural Electrification Act, approved May 11, 1973 (Public Law 93-32), established the Rural Electrification and Telephone Revolving Fund in the U.S. Treasury as the source of REA insured loan funds. The amendment provided for loan guarantees as well as insured loans. Most loans are made under the insured program at 5 percent interest. The amendment further provided for a small amount of loan funds at 2 percent for special conditions. The insured loan fund is replenished through collections on outstanding and future REA loans and from the sales of borrowers' notes to the Secretary of the Treasury or the private money market. Repayment of notes sold is insured by REA. Limitations on the amounts authorized for loans in any one year may be imposed by Congress.

The REA loan guarantee program went into operation in February 1974. Between then and January 1, 1979, $10.4 billion was committed in loan guarantees for electric generating and transmission facilities. Loan guarantee commitments in the telephone program totaled $391.9 million. Guaranteed loans bear interest at a rate agreed upon by the borrower and the lender. The loans may be obtained from the Federal Financing Bank or any legally organized lending agency qualified to make, hold and service the loan.

A May 7, 1971, amendment to the Rural Electrification Act authorized the establishment of a Rural Telephone Bank to provide supplemental financing for telephone systems. The Bank is an Agency of the United States in the U.S. Department of Agriculture. Its management is vested in a Governor (the REA Administrator) and a Board of Directors, some of whom are elected from among the Bank's borrowers. Bank loans are made for the same purposes as REA loans and bear interest at the Bank's cost of money rate as determined by the Governor. Bank loans exceeded $1.1 billion by the end of calendar year 1978.

Rural electric cooperatives financed by REA are helping consumer-members insulate their homes under the USDA "weatherization" program by obtaining and servicing loans for such purposes from the Farmers Home Administration and other sources.

35. FARMER COOPERATIVES

Five out of every six farmers use cooperatives for one reason or another—to market their products, provide their supplies, and procure needed services.

Farmers have large investments in their cooperatives. The 1978 Balance Sheet of the Farming Sector shows farmers' equity in these farmer-owned businesses was $13.95 billion at the beginning of 1978—up 9.1 percent from the previous year. The average cooperative investment per farm is $5,205.

Marketing and purchasing cooperatives accounted for about 40 percent of the total net worth of farmers' cooperatives. Farm Credit System cooperatives accounted for 30 percent and rural electric cooperatives 21 percent.

Economics, Statistics, and Cooperative Service (ESCS) makes a survey each year to measure the business activity of farmers through cooperatives.

Statistics for the fiscal year ending in 1976 show that 7,535 cooperatives did a business of $40.1 billion (excluding intra-cooperative business), 3.1 percent less than in the previous year. Membership in these cooperatives totaled 5.9 million, indicating many farmers belong to more than one cooperative.

California leads all States in cooperative business volume with $3.9 billion. Iowa is second with $2.98 billion, and Minnesota third with $2.9 billion.

Minnesota leads all States in number of cooperatives and memberships—with 1,048 cooperatives and 597,557 memberships. North Dakota was second in number of cooperatives with 664, and Wisconsin is third with 494. Wisconsin is second in number of memberships with 372,891, and Indiana is third with 365,135.

Farmers market 30 percent of their raw products and, to varying degrees, process and package products through cooperatives. Grain and soybean products lead in volume of cooperative marketing business—with $10.6 billion for fiscal year 1976. Dairy products are second with $8.4 billion, fruits and vegetables third with $2.8 billion, and livestock and livestock products fourth with $2.7 billion. Total marketing volume was $29.8 billion.

ESCS estimates that about 18 percent of the total farm supplies bought by farmers are purchased from cooperatives. ESCS figures for 1976 show cooperatives handled supplies totaling more than $9.4 billion, an increase of 8.7 percent from the previous year. Feed is the leading farm supply purchase at $2.5 billion. Fertilizer products account for $2.3 billion and petroleum for $2 billion. Farmers obtained more than $855 million worth of farm-related services through cooperatives.

36. MARKETING IMPROVEMENT

The Federal-State Marketing Improvement Program, administered by USDA's Agricultural Marketing Service, is designed to solve problems at the State and local level. The Federal contribution to projects may equal as much as one-half the cost in each State. In 1979, marketing improvement work was conducted under 23 projects in 15 States. The projects covered improved marketability of agricultural products, domestic and international market development for commodities, economic and physical efficiency of marketing, and improved marketing information.

37. TRANSPORTATION SERVICES

An efficient national transportation system is vital to effectively market farm and food products. Although the transportation system serving U.S. agriculture is highly developed, there are many complex and critical transportation issues which must be resolved for the system to work more effectively.

USDA's Office of Transportation (OT) consolidated transportation activities of several USDA agencies in December 1978 so that personnel, materials, and funds could be directed more efficiently to deal with agricultural transportation concerns.

Some of the issues which the office is involved with remedying are: rail car shortages, particularly to move grain, fertilizer, and cotton; rail branch line abandonments; high rail freight rates on some farm products; poor condition of rural roads and bridges; and lack of backhauls for independent truckers.

The Office develops agricultural and rural development transportation policies and programs.

It represents the interests of agriculture and rural communities with regulatory agencies so that efficient and economical transportation services and facilities are available domestically and internationally.

It also represents USDA in transportation discussions with other government agencies to plan for rural highways and other transportation facilities.

The Office provides information to Federal and State decisionmakers involved in regulatory, policy, and legislative matters which considers the needs of rural communities and agriculture. It supplies technical assistance and information to farmers, shippers, carriers, and others about specific transportation needs of agriculture and rural communities. OT identifies barriers and estimates adverse impacts on transport systems in agricultural and rural areas.

It coordinates demonstration projects to improve national and international transport systems for agricultural products.

A 16-member Rural Transportation Advisory Task Force headed by the Secretaries of Agriculture and Transportation has been exploring major transportation issues, such as freight car shortages, rail line abandonments, and regulatory matters. It is scheduled to report its findings and recommendations to Congress by January 1, 1980.

38. MARKET REGULATORY LAWS

USDA administers and enforces regulatory laws that help make marketing more orderly and efficient. The Perishable Agricultural Commodities Act encourages fair trading practices in marketing fruits and vegetables. It prohibits unfair and fraudulent business practices and sets penalties for violations. It provides for collecting damages from any buyer or seller who fails to live up to contract obligations. By cutting the risks of marketing highly perishable foods, it speeds their delivery in satisfactory condition to consumers.

The Federal Seed Act complements the seed laws of 50 States by requiring that all agricultural and vegetable seeds sold interstate be truthfully labeled. It prohibits false advertising and prohibits imports of low quality seed.

The Plant Variety Protection Act extends patent-type protection to developers of plants which reproduce through seeds. Developers of new varieties of such plants as soybeans, cotton, corn, and marigolds apply to USDA for certificates of protection. USDA examiners determine if the variety actually is novel and entitled to protection. The holders of certificates can turn to the courts to protect their "inventions" from exploitation by others.

The Agricultural Fair Practices Act enables farmers to file complaints with USDA if processors refuse to deal with them because they are members of a producer's bargaining or marketing association. This statute makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such an association. USDA helps to institute court proceedings when farmers' rights are found to be so violated.

Safe storage plays an important part in the orderly marketing of farm commodities, because immediate sale is not always possible or advantageous. Under the U.S. Warehouse Act, USDA operates a voluntary warehouse licensing system and a program of periodic inspections of licensed warehouses and their contents to help prevent deterioration and loss of stored products. USDA also examines those warehouses that store goods on which Commodity Credit Corporation loans have been made.

39. MARKETING ORDERS

A Federal marketing order gives farmers a means of solving a wide range of problems through unified action.

It is a flexible tool. It can be tailored to the needs of those using it. It is a legal tool. It has the force of law, with Government (USDA) assuring an appropriate balance between the interests of agriculture and the general public.

Each partner—producers and Government—has a unique role. Producers initiate orders and participate in administering them when the orders so provide. USDA furnishes guidance and sees that the orders are properly administered and enforced.

Marketing order authority is broad and varied, but the basic purpose is to provide the orderly marketing of fruits, vegetables, and dairy products, and to assure a flow of adequate supplies through orderly marketing.

Milk: Federal milk marketing orders establish minimum prices, based upon supply and demand conditions, at which milk handlers or dealers may buy milk from dairy farmers. The order must be approved by at least two-thirds of the dairymen supplying milk to a regional market. A three-fourths favorable vote is required under some circumstances. Public hearings are held on proposed changes.

Operating at the first level of trade—where milk leaves the farm and enters the marketing system—Federal orders lay the foundation for building more stable marketing conditions. They contain a built-in flexibility needed to cope with market changes. To those living in Federal milk marketing areas, this helps assure a steady supply of fresh milk. Most of the Nation's major population centers are within a marketing order area.

Fruits, Vegetables, and Specialty Crops: Growers of certain fruits, vegetables, and specialty crops (olives, hops, and some nut crops are examples) use marketing agreement and order programs to bring greater stability and orderliness to marketing. There were 46 such programs in fiscal year 1979 (Oct. 1, 1978 to Sept. 30, 1979), covering about $4.7 billion in crops grown in 34 States.

As in the case of milk marketing orders, orders for fruit and vegetable growers are issued by the Secretary of Agriculture only after a public hearing where producers, marketers, and consumers may be heard, and after approval by vote of the producers. After an order has been issued, the growers and handlers administer it through a committee made up of industry members. Their work is financed by industry assessments.

Most of the orders have quality and size regulations, which make available for the fresh produce market the most desirable grades and sizes. Many have quantity regulations which prevent gluts and shortages by keeping the commodity moving in orderly fashion throughout the marketing season. Some orders also have marketing research and development authority, which permits them to set up projects to find new market outlets to improve marketing, and to advertise and to promote consumption.

40. RESEARCH AND PROMOTION ORDERS

Research and promotion orders have been authorized by Congress for several commodities, including beef; cotton; potatoes; wool, lamb, and mohair; eggs; and wheat. These programs are similar to marketing orders; public hearings are held to establish them, and the industries involved must approve program provisions before being assessed payments to finance research, promotion, and educational activities.

Producers of cotton, for instance, use provisions for research and promotion in their order to expand markets for cotton and its products and to improve cotton's competitive position in domestic and international markets. Producers pay $1 per bale plus an additional assessment of four-tenths of 1 percent of the value of the cotton to finance advertising and promotion projects and to support research on production, processing, and marketing problems to develop and improve cotton products. The order is administered by a cotton board composed of producers selected by the Secretary of Agriculture from nominations made by cotton producer organizations.

41. MARKET NEWS

The Federal-State Market News Service reports up-to-the-minute information on prices, supply, and demand for most agricultural commodities. This information aids producers, wholesalers, and others in the marketing chain in deciding where and when to buy or sell. The industry voluntarily provides the information on which market news reports are based.

The market news system reports from major terminal markets and production areas throughout the country. Information gathered in one area is distributed rapidly to other areas through USDA's nationwide telecommunication system. It is then released by telephone, mail, and through newspapers, radio, and television.

Through increased use of automatic telephone answering devices, the Market News Service is able to provide current information 24 hours a day in many areas. Reporters record market reports on tape. The tapes can then be used on telephones. The taped reports are changed several times a day as more information is gathered.

Last year the Federal-State Market News Service, administered by the Agricultural Marketing Service in cooperation with 44 State agencies, employed 229 Federal reporters who reported on 305 commodities at 1,549 markets.

42. ECONOMICS, STATISTICS, AND COOPERATIVES SERVICE

An orderly production and marketing system depends on an accurate and current accounting of potential output, available stocks, and the other factors that influence agriculture.

The Economics, Statistics, and Cooperatives Service (ESCS), through its Washington, D.C., headquarters and 44 field offices serving all States, annually publishes hundreds of reports detailing production and economic prospects for crops, livestock, dairy, and poultry. Other releases outline stocks, prices, labor, and weather, and similar items concerning farmers and ranchers and those associated with agriculture.

Geared toward producers, this information can help producers plan their planting, feeding, breeding, and marketing programs. The data also are used by agricultural services and businesses, trade groups and financial organizations to determine needed inputs, resources, transportation, and storage related to crop and livestock products.

Information for these continuing series of estimates is gathered from those most closely involved, the producers. Contact is made by mail survey, and telephone and personal interview. For such major crops as corn, cotton, wheat, and soybeans, special on-the-spot counts and measurements of plant development are made in a cross-section of fields throughout the Nation. All the raw indications from these varied sources are summarized by the ESCS office serving that State and sent to the agency's Crop Reporting Board in Washington, D.C., which sets and issues the official estimates for the State and Nation. All reports are released at scheduled times and the information is readily available to the public.

ESCS also does research and analysis covering various topics related to agriculture and rural America. Production and marketing of major commodities is one area of study. Analysts make projections for supply, demand, and use of specific crops, dairy products, or livestock. They predict farm income and food prices.

Another major area of research is foreign agriculture and trade. Economists assess foreign developments and agricultural policies to determine their impact on U.S. foreign agricultural trade.

Use, conservation, and development of natural resources as they affect economic growth are also covered.

ESCS economists examine rural population, employment, and housing trends, and rural people's economic adjustment problems.

Performance of the agricultural industry, including the production, processing, and marketing sectors is another important area.

ESCS also provides research and technical and educational assistance to help farmer cooperatives operate efficiently.

Technical assistance in cooperative organization and operation is provided on request by individual farmers and cooperatives, or groups of cooperatives. Results of research on financial, organizational, legal, and economic aspects of farmer cooperatives are distributed through various publications and periodicals.

43. PURCHASE PROGRAMS

Each year USDA buys substantial quantities of food which are donated to schools, needy persons, public institutions, the elderly, and disaster victims. These purchases are made under authority of various laws.

Section 32 of The Act of August 24, 1935, as amended sets aside the equivalent of 30 percent of all customs receipts to expand market outlets for agricultural products. Section 6 of the National School Lunch Act, as amended, authorizes transfer of a portion of Section 32 funds for purchase of commodities to supplement the school lunch, school breakfast, and nonschool food programs to help insure nutritionally adequate meals for children. Section 416 of the Agricultural Act of 1949 authorizes donation of foods from stocks acquired under operations of the Commodity Credit Corporation (CCC). Section 709 of the Food and Agriculture Act of 1965 authorizes CCC to purchase dairy products at market prices when CCC stocks are not available. And Section 4(a) of the Agriculture and Consumer Protection Act of 1973 as amended by Public Law 93-113 authorizes funds to maintain the level of donations for domestic assistance programs except schools, without regard to previous restrictions on price. It also authorizes use of CCC funds to buy commodities for donation if CCC stocks of food are no longer available. Similar authority for schools is authorized under the National School Lunch Act, as amended by Public Law 95-166. Section 707 of the Older Americans Act of 1965 as amended authorizes funds for nutrition programs for the elderly.

In fiscal year 1978, under the authority of these laws, USDA bought approximately 1.30 billion pounds of food for distribution in the school lunch and other feeding programs.

44. FOOD MERCHANDISING ASSISTANCE

Food merchandising assistance is provided by USDA's Agricultural Marketing Service, as needed, to maintain an orderly flow of food commodities through regular marketing channels. This involves promoting increased use of commodities that are temporarily in heavy supply and are experiencing marketing difficulties.

Communications media and leaders in the appropriate food trades—retailers, wholesalers, institutional users, and others—are encouraged to use foods which afford especially good value because of greater than usual supplies. They are also urged to direct consumers' attention to these plentiful foods.

45. FOOD ASSISTANCE PROGRAMS

The food assistance programs administered by USDA's Food and Nutrition Service include food assistance to families and children. All are operated in cooperation with State and local governments.

The Food Stamp Program helps low-income consumers buy more food of greater variety to improve their diets. They receive coupons that are used to purchase food at any authorized retail food store. Begun in 1961 as a pilot program, food stamps are now available to low-income families in every county in the United States. In June, 1979, 18.3 million people participated and received $556 million in bonus coupons.

The Food Distribution Program distributes foods acquired under price support, surplus removal, and special purchase programs directly to schools, institutions, nutrition programs for the elderly, and needy family programs on Indian reservations. Foods are donated to State distributing agencies which in turn distribute the food to eligible persons.

Child Nutrition Programs benefit children—many from needy families—through school lunches, school breakfasts, and year-round and summer food service programs in nonschool situations such as day care centers and recreation programs. Federal contributions in cash and foods are expected to total about $3.4 billion in 1979.

The National School Lunch Program encourages schools to serve nutritious moderately priced lunches. Participating schools agree to serve a lunch which meets about one-third of the daily needs of growing children and the nutritional standards set by the Secretary of Agriculture. Schools also agree to provide lunches free or at reduced price to children from low-income families.

Normally, about 77 percent of the food consumed is purchased locally by schools. The remainder is supplied by the Department of Agriculture. Schools also receive cash reimbursement for each lunch served that meets the program's nutritional standards.

The School Breakfast Program, which is similar to the lunch program, provides nutritious breakfasts to children at school. Currently, the program serves breakfasts to about 3 million children. About 84 percent of the breakfasts are served free or at a reduced price to needy children.

The Special Milk Program helps schools and other nonprofit child care institutions make fluid milk available to more children. The program helps offset the cost of milk to paying children and provides free milk to those who qualify. Children who are eligible for free lunches are eligible for free milk under this program.

The Child Care Food Program provides cash and foods to help furnish meals and snacks to preschool children year-round in non-residential child care centers, family day care homes, and other nonprofit institutions. This program currently reaches about 644,000 children.

The Summer Food Program for Children provides food service to needy preschool and school age children in the summer or during extended school vacations. Any public, nonprofit private, nonresidential institution or residential summer camp may sponsor the program. More than 2.5 million children took part in the Summer Food Program in July 1978.

The Special Supplemental Food Program for Women, Infants, and Children provides cash grants to States to make specific supplemental foods and nutrition education available to expectant and nursing mothers and infants and children up to 5 years of age. The program operates in 50 States, Puerto Rico, and the Virgin Islands, currently reaching over 1.5 million people.

The Nutrition Education and Training Program provides grants to states to help them give children, teachers, and school food service personnel training on the important relationship between nutrition, good food, and health.

The program began operating in March 1978.

46. EXPORT SERVICES

Holding and expanding the U.S. share in world markets, which provide an outlet for the production of about one-third of harvested crop acres, is crucial to U.S. farm incomes and important to the entire economy. Today, about one-fifth of net farm income comes from overseas sales. Moreover, farm exports sustain about a million U.S. jobs, strengthen the dollar, cut tax costs for farm programs and stimulate production of food for the benefit of all consumers. To maintain and expand the level of exports requires a vigorous export market development program.

The Department's Foreign Agricultural Service (FAS) promotes commercial exports by conducting a market development program abroad in cooperation with agricultural export trade associations that represent a wide variety of U.S. commodities. FAS works with 50 of these associations—known as cooperators—which in turn work with approximately 1,600 overseas organizations, 1,500 U.S. cooperatives, and 8,700 private U.S. firms. In addition FAS works with departments of agriculture in all 50 States.

Cooperator activities are carried out under contractual agreements with the Department. Promotion activities are proposed in annual marketing plans developed by the cooperator and submitted to USDA for approval.

The cooperator program uses two basic approaches to market promotion: One of them is trade servicing, which means helping the buyer choose the right U.S. product and use it efficiently. Trade servicing is usually used to encourage sales of bulk, unprocessed commodities such as soybeans and feedgrains. The other method is direct promotion, used by cooperator and State groups representing producers of semiprocessed and processed products.

FAS sponsors overseas trade shows featuring U.S. food products, in-store promotions of U.S. foods, and U.S. sales team visits to foreign buyers. FAS also maintains a Trade Opportunity Referral Service in which foreign buyer requests for U.S. agricultural products are matched by computer with U.S. suppliers. FAS also has a new product and label testing system for U.S. sellers who want to try a foreign market.

FAS also maintains trade offices throughout the world to service foreign export markets in major or emerging trade areas more directly. Trade offices are now located in Seoul, Korea; London, England; Hamburg, West Germany; Manama, Bahrain; Singapore; Warsaw, Poland; and Miami, Florida (serving the Caribbean and Latin America area). Four additional trade offices are expected to be opened in 1980.

U.S. agricultural exports were about $29.4 billion in calendar year 1978.

47. USDA GRADING PROGRAMS

USDA grade standards and grading services for food and farm products provide buyers and sellers with an impartial appraisal of the quality of what is being sold. The buyer has the right to expect a particular quality from USDA Choice beef, USDA Grade A eggs, or any other USDA graded product. Likewise, the seller has the right to expect a price for the product commensurate with its quality.

Three USDA agencies—Agricultural Marketing Service, Federal Grain Inspection Service, and Food Safety and Quality Service—provide voluntary grading services for most food and farm products. Grading is often provided in cooperation with State departments of agriculture, and a fee is charged for the service. In 1978, USDA certified the quality of 56 percent of the total production of beef in the United States, 45 percent of the total fresh fruits and vegetables, 33 percent of the shell eggs, 70 percent of the butter, 65 percent of the frozen fruits and vegetables, 35 percent of the canned fruits and vegetables, 92 percent of the turkeys, and 74 percent of the chickens and other poultry.

USDA also classed 98 percent of the cotton and inspected 97 percent of the tobacco produced in the United States.

USDA grade standards are continually appraised by experts so that they remain realistic. Each year about 7 percent of the standards for about 400 food and farm products are revised to keep them consistent with current marketing practices. In addition, new standards are developed as the need arises.

The number of grades for a particular product depends on its variability. It takes eight grades to cover the degrees of quality in beef, but only three for turkey.

Grading is used more often at the wholesale level than at the consumer level. Grade labeling of food products is not required by Federal law.

48. MEAT AND POULTRY INSPECTION

All meat and poultry sold across State lines, in foreign commerce, or in States without inspection programs for plants marketing only within the State, is subject to Federal inspection by USDA inspectors. USDA provides financial and technical aid to State inspection programs for intrastate plants, which must be at least equal to the Federal system.

Inspectors of USDA's Food Safety and Quality Service (FSQS) examined more than 116 million meat animals and more than 3 billion birds in fiscal year 1978. In addition, over 27 billion pounds of processed poultry products and more than 66 billion pounds of processed meat products were inspected. Meat and poultry that is unwholesome, adulterated, or mislabeled is kept out of the consumer food supply. During 1977, FSQS inspectors condemned as unwholesome more than 66 million birds, 499,000 meat animals, and 77 million pounds of processed products.

USDA compliance officers maintain constant vigilance in marketing channels to check for uninspected meat and poultry, counterfeit inspection stamps, inaccurate labels, and contaminated or spoiled products. USDA may detain any suspect product, and criminal charges may be brought against anyone in the marketing channel who violates Federal meat and poultry inspection laws.

Each foreign plant that ships meat or poultry to the United States and the inspection system in that country must be certified by USDA. U.S. veterinarians visit the plants as often as necessary to insure compliance with USDA requirements, but must visit them at least once a year to check on the adequacy of foreign inspection. At U.S. ports of entry, USDA inspectors examine shipments as an additional safeguard, to see that imported products meet U.S. standards for wholesomeness and proper labeling.

Standards and labeling requirements are important phases of the inspection system. In fiscal year 1977, USDA labeling specialists examined for accuracy and completeness over 106,000 label designs submitted by processors for advance approval. These specialists also make sure that ingredient statements on products list the ingredients in order of predominance.

USDA gives special attention to monitoring meat and poultry for possible drug, pesticide, and chemical residues and to the safety of additives used in meat and poultry products.

USDA conducts a public information campaign to alert consumers to the fact that improper handling of meat and poultry may result in hazards to human health. Should such a hazard arise, a special USDA unit works with local, State, and Federal public health agencies to speed identification of the cause.

49. EGG PRODUCTS INSPECTION

The purpose of the Egg Products Inspection Act is to assure that eggs and egg products which reach the consumer are wholesome and unadulterated. Egg products are used by many large manufacturers to make cakes and other prepared food products.

Under the Act, FSQS provides continuous mandatory inspection in all plants processing liquid, dried, or frozen egg products. The Act also controls the disposition of restricted shell eggs—those that might contain harmful bacteria which could cause foodborne illness.

In fiscal year 1978, FSQS inspected some 898 million pounds of liquid, frozen, and dried egg products in 143 processing plants. USDA and cooperating State agencies registered 5,154 egg handlers and hatcheries and made 21,595 inspection visits to assure that restricted shell eggs were disposed of properly. Over 7,000 individual pesticide determinations were made, and all products were found to be below established pesticide action level guidelines.

Under the Act, egg products from a foreign country can be imported into the United States only if the country's inspection system is equivalent to that of the United States. The Canadian system, found equivalent in 1977, remains the only one eligible to export egg products to this country.

50. FEDERAL GRAIN INSPECTION SERVICE

The Federal Grain Inspection Service (FGIS) was established in 1976 as a separate agency in USDA. Its primary task is to carry out provisions of the U.S. Grain Standards Act. The agency is mandated by Congress to establish a nationwide system to assure integrity in the inspection, weighing, and handling of American grain, and to promote the orderly marketing of U.S. grain, both at interior and export locations.

The orderly marketing of grain requires uniform descriptions that are understood and accepted by buyers and sellers. To meet this need, official U.S. standards have been developed for 10 grains—corn, wheat, rye, oats, barley, flaxseed, sorghum, soybeans, triticale, and mixed grain. Standards are reviewed and revised when necessary to meet current marketing needs and practices.

All grain for export must be officially weighed. It must also be inspected for quality if it is marketed under a U.S. grade. All grain that enters an export elevator at an export port location must also be weighed as it is received. The inspection and weighing of export grain must be performed by FGIS personnel, or licensed employees of eight States that have been delegated this authority.

For grain that is handled at inland locations or sold in the domestic market, private firms and state agencies are designated to provide official inspection service under FGIS supervision. Such inspection is provided on a request basis. Official weighing is authorized on a request basis for grain that is being sold in the domestic market.

Fees for inspection and weighing are paid by the users of the services. Buyers or sellers in either export or inland markets who are not satisfied with the grades they receive can appeal the inspection results.

In addition to the inspection and weighing of grain, FGIS is also responsible, under the Agricultural Marketing Act of 1946, for inspection and weighing of rice, dry beans, peas, lentils, processed grain products, hay, straw, hops, and other assigned agricultural commodities. These services are available on a request basis. Fees for the inspection and weighing services are paid by the users of the services.

51. REGULATION OF PACKERS AND STOCKYARDS

The Packers and Stockyards Act (P&S) regulates marketing practices in the livestock, poultry, and meat industries. Specifically included are livestock markets (terminal and auction markets), livestock market agencies, livestock dealers, meat packers and live poultry dealers and handlers. The law prohibits unfair, deceptive, discriminatory, and monopolistic trade practices in regulated industries.

The P&S Act seeks to maintain fair and open competition in the marketing of livestock, poultry, and meat to assure that true market value is received. Livestock markets, buying stations, dealers, packers, and poultry processors subject to the Act must maintain accurate scales and weigh livestock, poultry and meats accurately.

52. PLANT PROTECTION AND QUARANTINE

In most cases, plant pest problems are handled by farmers, ranchers, and other property owners and their State or local governments. However, when an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resource, Plant Protection and Quarantine (PPQ) of USDA's Animal and Plant Health Inspection Service may join in the control work.

Most pests and weeds that are targets of PPQ programs are not native to America. They gain entry into this country through commercial trade channels or other means. PPQ has the additional responsibility of preventing new introductions.

Agricultural quarantines are the first line of defense against foreign pests. Quarantines regulate the importation of materials that may harbor exotic insects and diseases. For example, a tropical fruit may contain the eggs or larvae of a score or more of highly destructive fruit flies. The fruit usually cannot be brought into this country without a permit issued by PPQ—and the fruit may also be subject to inspection, treatment, and other safeguards.

PPQ inspectors at international ports of entry (along with cooperating Customs officers) annually inspect approximately 300,000 air and ship arrivals carrying 64 million pieces of luggage. Countless commercial shipments must be checked, as well as all ship and aircraft cargo and stores arriving from overseas. In fiscal year 1978, more than 131,000 quarantine-significant and other foreign plant pests and diseases were intercepted.

When foreign pests do manage to slip through the quarantine barrier, PPQ conducts short-term operations to eradicate or control outbreaks. When pests are new to this country, control techniques may not be available. In any case, PPQ applies interstate quarantines and takes other steps to prevent spread until effective measures can be taken.

In many cases, the foreign pests are considered minor problems in their native lands where they are kept in check by parasites, predators, and diseases. Since such natural enemies usually do not exist in the United States, one of PPQ's primary control techniques is the importation, rearing, and release of parasites. Other tools include pesticides, release of sterile insects, and cultural controls.

While most of the control work involves foreign pests, PPQ also joins in suppressing periodic outbreaks of certain native pests too widespread for farmers and ranchers to handle by themselves. Control of grasshoppers on western rangeland is an example.

Much of the protection and quarantine work is jointly planned, financed, and executed with the affected States. State departments of agriculture are the principal cooperators, but experiment stations, universities, and extension services often participate. PPQ works closely with State and local citizen groups in planning and carrying out the programs. Close cooperation is also maintained with the Governments of Canada and Mexico in the control of common pests or pests that pose an imminent threat to U.S. agriculture.

All possible safeguards are taken to protect the health of people, domestic animals, crops, wildlife, and general environmental values. Whenever possible, nonchemical control methods are applied. All programs are also studied critically for their impact on the environment.

53. VETERINARY SERVICES

Protecting the health of the Nation's livestock, poultry, and other animals is the responsibility of Veterinary Services of USDA's Animal and Plant Health Inspection Service. This team of trained veterinarians, animal health technicians, and other professionals has five primary tasks: Keeping foreign diseases out of this country, eradicating outbreaks of those that get past our border defenses, fighting domestic animal diseases of economic significance, safeguarding veterinary biologics, and providing for humane care of animals. Disease control and eradication programs are carried out through close cooperation among the Federal and State governments, the veterinary profession, and the livestock and poultry industries.

The battle against livestock diseases began in 1884 when Congress created a special agency within USDA to combat bovine pleuropneumonia—a dread cattle disease that was crippling exports as well as taking a heavy toll of cattle in the Northeastern and Midwestern States. Within 8 years, contagious bovine pleuropneumonia had been eradicated. This campaign set the pattern for subsequent disease control and eradication programs.

Diseases that have been eradicated in addition to bovine pleuropneumonia include foot-and-mouth disease, Texas cattle fever, fowl plague, Venezuelan equine encephalitis, sheep scabies, exotic Newcastle poultry disease, and hog cholera.

Other diseases and parasites currently being combated by Veterinary Services include brucellosis, screwworms, cattle fever ticks, tuberculosis, cattle scabies, and pseudorabies in swine.

Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals, testing and examination to detect infection, destruction of infected (sometimes exposed) animals, treatment to eliminate parasites, vaccination in some cases, and cleaning and disinfection of contaminated premises.

In this era of rapid air and land travel, U.S. livestock are exposed to ever-increasing threats from exotic diseases. Import-export regulations—aimed at keeping out such dangerous diseases as foot-and-mouth disease, African swine fever, and rinderpest—are administered by Veterinary Services. In addition, a special team of trained veterinarians and livestock inspectors has been established within Veterinary Services to respond immediately to any outbreak of a foreign animal disease.

Under the Virus-Serum-Toxin Act of 1913, Veterinary Services enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective.

Veterinary Services also enforces humane laws, including the handling of livestock transported by railroad; care and treatment of animals used in research, the wholesale pet trade, and zoos and circuses; and the Horse Protection Act of 1970 (and amended in 1976) prohibiting "soring"—the use of cruel and inhumane practices to enhance the gait of show horses.

Veterinary Services programs are carried out by a field force of about 600 veterinarians and about the same number of lay inspectors, plus about 250 laboratory technicians, working out of area offices (usually located in State capitals). Staff officials for the various programs are headquartered in Hyattsville, Md.

54. PRODUCTION ADJUSTMENTS

The Food and Agriculture Act of 1977 protects farmers' incomes through commodity loans, target prices, land diversion, and disaster payments when necessary. The producer is provided flexibility and may plant those crops most in demand in the marketplace or those that he can grow best. Also, the Act provides measures aimed at assuring a stable supply of basic, high quality foods at reasonable prices.

For the wheat, feed grain, and upland cotton programs, the 1977 Act discards feed grain bases and wheat and upland cotton acreage allotments, substituting national program acreages and a normal crop acreage concept, and basing program benefits on what farmers grow today rather than on what they grew in the past. The farm normal crop acreage figure is total acres planted to designated crops in 1977. This acreage may be adjusted where abnormal.

The "set-aside" plan provided by the Agricultural Act of 1970 was continued under the 1973 Act and is a feature of the 1977 Act. It replaced the crop acreage restriction of earlier programs for shifting land from unneeded crops to conserving practices. Under the plan, a participating farmer "sets-aside" from crop use the farmer's share of the national land diversion requirement. The remaining cropland is available for the farmer's chosen use, except for certain "quota" crops (peanuts, most kinds of tobacco, and extra long staple (ELS) cotton), and limitations imposed by the normal crop acreage. Set-aside crops under the Act are wheat, feed grains (corn, sorghum, and, if designated, barley, and oats), upland cotton, and rice. A 1978 set-aside was in effect for wheat and feed grains (except oats), but not for upland cotton or rice. There was also a voluntary diversion program for feed grains and for upland cotton and a grazing/haying program for wheat. A 1979 set-aside was in effect for wheat and feed grains, a voluntary diversion program for corn and sorghum, and a grazing/haying program for wheat.

For most kinds of tobacco, ELS cotton, and peanuts, earlier legislation continues to provide for marketing quotas. The Secretary of Agriculture must proclaim these quotas when supply prospects exceed specified levels. If approved by two-thirds or more of the producers voting in a referendum, the quotas become mandatory for all.

A new 4-year program is in effect for peanuts, with a two-tier price system and poundage quotas. The national allotment is 1,614,000 acres; the minimum national poundage quotas are 1,680,000 tons in 1978, reduced to 1,440,000 tons in 1981. The loan on quota base peanuts is set at not less than $420 per ton. The 1978-crop support is $420 per ton. Additional peanuts will be supported at levels taking into account world market prices. Thus, the new peanut program should make U.S. peanuts more competitive in world markets. Under the more rigid programs of the past, U.S. peanuts have been frequently priced out of world markets.

The Act is designed to help producers find and develop new markets and compete vigorously to hold existing markets. Holding and expanding the U.S. share in world markets, which usually provide an outlet for the production from one-fourth to one-third of harvested crop acres, is a promising path to better farm incomes. While U.S. consumers continue to be American farmers' best customers, the greatest potential for market expansion lies overseas. The United States has 217 million consumers who are increasing their consumption of farm products by about 1-1/2 percent a year. Overseas, about 2 billion people are increasing consumption by more than 2 percent a year.

55. PRICE SUPPORT PROGRAMS

Price support to farmers is provided through commodity loans, payments, or other means for food grains (wheat, rice, and rye); feedgrains (corn, sorghum, barley, and oats); oil crops (soybeans, peanuts, and flaxseed); wool and mohair; and cotton, milk, tobacco, honey, and crude pine gum. The loan programs are financed by the Commodity Credit Corporation (CCC) and administered by the Agricultural Stabilization and Conservation Service (ASCS).

Price support assistance for wheat, rye, rice, feedgrains, cotton, peanuts, and tobacco usually is contingent upon participation by the farmer in production adjustment programs. The assistance to farmers is provided at preannounced levels set by statutory formulas. Methods include loans on crops held in storage by farmers, market purchases in times of excess supply, and supplemental payments to wool and mohair producers.

Milk prices are supported mainly by the buying of excess market supplies of dairy products, such as cheese, butter, and dry milk from processors.

Loans on eligible commodities are made to producers through ASCS county offices. The loans are "nonrecourse"—if market prices rise above the loan level, the producer can pay off the loan, with interest, and sell the crop on the market. If prices fall below the loan level, the producer can turn the commodity over to CCC in full payment of the loan. Price support on tobacco, peanuts, and naval stores is made through producer associations acting for individual producers.

Target prices under the new bill are based on costs of production rather than on parity as in the past. After 1978, target prices for all crops covered are to be adjusted annually to reflect changes in the average adjusted cost of production, such as variable costs, machinery ownership costs, and general farm overhead.

An individual may receive target price (deficiency) and voluntary diversion payments, when applicable, under the wheat, feed grain, and upland cotton programs of up to $40,000 in 1978, and $45,000 in 1979. Rice payments are limited to $52,250 in 1978 and $50,000 in 1979. In 1980 and 1981 there will be a payment limitation of $50,000 that will apply to the total deficiency and voluntary diversion payments received on wheat, feed grains, upland cotton, and rice. Loans and purchases are excluded from this limitation.

56. GRAIN RESERVE PROGRAM

The 1977 Act provides for a producer storage program for wheat and feed grains by providing original or extended price support loans, repayable in 3 to 5 years. Producers receive annual payments in advance from the Commodity Credit Corporation to help pay for the costs of reserve storage. Producers who grow wheat, corn, barley, sorghum, or oats can participate in the program. A reserve program for rice also is in effect. These crops must be under a CCC price support loan to be eligible for the reserve program. Grain placed into the reserve is subject to the same storage requirements as grain in the regular price support loan program. The farmer agrees not to sell grain in the reserve until national average market prices reach 125 percent of the then current national average loan rate for feed grains or 140 percent of the then current national average loan rate for wheat. Once these levels are reached, the producer may repay the reserve loan and sell the grain without penalty. Producers who sell grain in the reserve before this "release" date are required to pay an early redemption charge in order to ensure effectiveness of the reserve program. When the national average market prices reaches 140 percent of the then current national loan rate for feed grains or 175 percent of the then current national loan rate for wheat, reserve loans will be called. The "call" level is not a ceiling over market prices. After the reserve loan is repaid, the producer is not required to sell the grain, but may hold for higher prices.

57. FARM FACILITY LOANS

Assistance through loans is available to producers of grain, soybeans, rice, high moisture forage and silage, and certain other agricultural commodities for the construction of on-farm storage and drying facilities. The maximum loan amount is 85 percent of the cost of the structures and equipment, not to exceed $50,000. The maximum loan term is 8 years and the interest rate is based on the rate charged the Commodity Credit Corporation by the U.S. Treasury.

58. AGRICULTURAL CONSERVATION PROGRAM

The Agricultural Conservation Program (ACP), administered by the Agricultural Stabilization and Conservation Service (ASCS), provides for cost-share assistance to farmers and ranchers in carrying out measures to prevent soil loss from wind and water erosion, solve water conservation and water quality problems, conserve wildlife, and preserve forest resources.

The program stresses solving local soil and water conservation and pollution problems. Local authority under the program is delegated to the county ASC committee which consults with the county development groups to develop practices to solve soil and water conservation problems. Included are Federal and State agencies and other organizations interested in soil and water conservation and environmental problems. The Soil Conservation Service and Forest Service provide technical program guidance to ASC committeemen and technical assistance to farmers in carrying out conservation practices. If a conservation practice is approved, the Government will bear part of the cost of conservation work, while the farmer bears the balance.

59. EMERGENCY CONSERVATION PROGRAM

The ASCS Emergency Conservation Program (ECP) provides emergency funds for sharing with farmers and ranchers the cost of emergency conservation measures needed to control severe wind erosion on farmlands, or to rehabilitate farmlands damaged by wind erosion, floods, hurricanes, drought, or other natural disasters which create new conservation problems. A farmer or rancher who qualifies may receive up to 80 percent of the cost of the measures. Subject to availability of funds, the ASC county committee in consultation with the State ASC committee is authorized to implement the ECP for eligible farmers and ranchers.

60. THE WATER BANK PROGRAM

The Water Bank Program is available to farmers or ranchers having specified types of wetlands along major migratory waterfowl flyways. The Agricultural Stabilization and Conservation Service operates the program primarily along the northern part of the Mississippi River and along north-south flyways. The program is designed to preserve and improve migratory waterfowl and other wildlife habitat; preserve and improve wetlands; conserve surface waters; reduce runoff, soil erosion, and stream sedimentation; contribute to flood control, better water quality, and improved subsurface moisture; and accomplish related conservation and environmental objectives. Eligible persons may enter into 10-year agreements, with provision for renewal, and receive annual payments to meet the purposes of the program. ASC county committees administer the program. Planning and technical services are provided by the Soil Conservation Service.

61. SOIL AND WATER CONSERVATION

The Soil Conservation Service (SCS) gives technical assistance to farmers, ranchers, other individuals and groups, and local and State governments to reduce erosion and sedimentation, conserve water and improve water quality, reduce energy requirements, and plan better land and water uses. SCS provides help largely through some 2,950 local conservation districts that are organized under State law by local people.

In addition to direct help to landowners and operators, SCS has USDA leadership for the National Cooperative Soil Survey. The Service also reclaims abandoned mines and provides conservation assistance to current mining operations.

SCS provides technical and financial assistance to sponsoring groups in planning and installing small watershed protection projects under Public Law 566 and related acts. The Service also participates in various river basin surveys and investigations, provides flood hazard information for communities, and helps in postflood restoration work on streams and rivers.

SCS has leadership within USDA for the Resource Conservation and Development Program; for the Great Plains Conservation Program, accelerated conservation assistance in areas vulnerable to wind erosion; and for conducting snow surveys in cooperation with other Federal, State, and private agencies involved in water supply forecasting in the West. The Service assists schools in planning and building outdoor conservation classrooms and helps environmental and wildlife groups with natural resource projects. It also finds new strains or adapts grasses, legumes, shrubs, and trees for a wide range of conservation uses, including increased production of pasture and range; windbreaks; wildlife food and cover; protection of streambanks and shorelines; highway rights-of-way; and reclamation of surface mined land.

V. THE RURAL SOCIAL ENVIRONMENT

62. RURAL POPULATION

The United States today is primarily urban. People who live in large cities and their suburbs and in small towns of at least 2,500 population account for three-fourths of the total population. Rural people number about 55 million. Although the number of rural people has been rather stable for several decades, their proportion of the total population has fallen as the national numbers have increased. Farm residents now number about 8 million, and are a minority even in the rural population.

Table 13.—U.S. rural population, 1950, 1960, 1970, and 1978[1]

	Total	Nonfarm	Farm
		Millions	
1950	54.5	31.5	23.0
1960	54.0	38.4	15.6
1970	53.9	44.2	9.7
1978	55.0[2]	47.0[2]	8.0

[1] Rural population includes all people living in the open country and in towns of less than 2,500 inhabitants. Farms are essentially places of 10 acres or more from which $50 or more of farm products were sold in the preceding year.

[2] Estimated.

The farm population has declined as the technological revolution has greatly reduced the manpower required in agriculture. The rural nonfarm population has grown by an amount about equal to the loss of farm people.

Future losses in the farm population will be small compared with those of the past, since the present population is more in line with the state of farming technology. The total rural population is not likely to increase very much, however, because some rural communities will become urban as they grow.

Rural population trends vary from one region to another. Over a broad area of the Great Plains, western Corn Belt, coastal plain Cotton Belt, and the southern coalfields, the rural population declined substantially from 1940 to 1970 because of major losses in agriculture and mining employment. On the other hand, rural population in the Pacific coast, Southwest, Lower Great Lakes industrial belt, North Atlantic coast, southern Piedmont, and Florida Peninsula increased rapidly during this period. Since 1970 a number of rural counties that were losing population in the 1960's have begun to grow again because of job development, commuting, or retirement.

63. AGE AND RACE

The median age of the rural population is about the same as that of the U.S. population as a whole—29 years. But migration has greatly altered the age composition in many rural areas. In a number of Great Plains and Corn Belt counties affected by the drop in farm employment, the median age has risen to more than 40 years as young adults have moved away. In these areas, there are typically more people in their sixties than in their twenties. The needs, attitudes, and preferences of the elderly affect those communities more than elsewhere. In other rural communities, however, the median age is in the low twenties because of higher birth rates or job development.

Except for American Indians, the great majority of blacks and other racial minorities lives in urban areas. In the not too distant past, blacks were disproportionately rural and agricultural, but since 1940 they have moved to the cities in large numbers. In the 1960's alone, the number of blacks and other racial minorities on farms dropped about 64 percent. The decline resulted from the near elimination of the sharecropping tenant system in cotton, peanut, and tobacco production in which many blacks had been engaged. About 8 percent of the total rural population was black in 1970; less than 4 percent was Mexican-American, Indian, or other races.

64. RURAL EMPLOYMENT

Rural and other small labor market areas of the United States gained 5.9 million nonfarm wage and salary jobs between 1970 and 1979—33 percent of total additions. This marks an expansion of 35 percent compared with a 22 percent increase experienced in the larger urban counties. Most of the rural increase occurred during the 1971–74 and 1975–79 economic expansions, with sharp job losses occurring during the 1974–75 downturn.

In the rural and other smaller labor markets, employment increased by 52 percent in the private sector's service-performing industries, accompanied by gains of 55 percent in mining and 53 percent in construction. The employment gains in the service industries, mining, and construction in the larger urban communities were 36, 45 and 20 percent. Manufacturing employment, which leads job expansion in the 1960s, increased by a relatively modest 17 percent in the rural areas, contrasted with a 4-percent gain in the larger urban areas.

Two-thirds of the rural employment gains were recorded in the South and West. Growth in construction, utilities, mining, and recreation-resort industries was particularly strong in the West. Significant expansion in the production of coal occurred in Appalachia, southern Illinois, Indiana, and in the Western States.

> While nonfarm wage and salary employment increased in many small labor market areas, average annual employment in farming (farm operator, hired workers and unpaid family help) declined from 4.5 million in 1970 to 4.2 million in 1977.

Average hired farm employment increased modestly from 1.2 million to 1.3 million.

The small labor market areas had an umemployment rate of 6.6 percent in March 1979; this rate was nearly a percentage point above the rate in the larger areas (5.8 percent). The difference in the rural-urban unemployment rates widened to about two percentage points in the rural localities with heavy representations of seasonal and other unemployment-prone industries. However, the rural areas in the Dakotas, Nebraska, Wyoming, and adjoining States had unemployment rates below the average rate for the larger urban areas.

65. RURAL INCOME

Incomes of families in nonmetropolitan areas have historically been lower than those for families in metropolitan places of residence. The 1970 Census of population shows that median income of nonmetropolitan families in 1969 ($7,832) was 75 percent of the median income of metropolitan families ($10,474). By 1977, according to the Current Population Reports, the median income of nonmetropolitan families ($13,789) had improved to 79 percent of metropolitan median family income ($17,371). Since 1969 significant gains have been made in reducing the number of nonmetropolitan residents below the official poverty threshold. Between 1969 and 1977 the number of nonmetropolitan people in poverty fell by 1.2 million (even though this number increased slightly between 1976 and 1977) while the number of poor persons residing in metropolitan areas increased by 1.8 million. These occurrences have caused the gap between metropolitan and nonmetropolitan poverty rates to diminish, yet nonmetropolitan places still have a larger percent of their indigenous population in poverty.

	Persons		
	Total number	Number in poverty	Poverty rate
1976	(millions)	(millions)	(percent)
United States	212.3	25.0	11.8
Metro	142.9	15.2	10.6
Nonmetro	69.4	9.7	14.0
1977			
United States	213.9	24.7	11.5
Metro	142.8	14.9	10.4
Nonmetro	71.1	9.9	13.9

66. HOUSING

Housing in nonmetropolitan areas has continued its marked improvement since 1970. By 1977, the stock of housing increased about 22 percent, the number of homes that lacked complete plumbing or were crowded, or both, declined 39 percent and home ownership rose from 70 to 73 percent.

Even though this rapid improvement occurred, there were 2.1 million nonmetro households living in homes that lacked complete plumbing or were crowded, or both, in 1977. About 44 percent of the U.S. stock of inadequate housing was located in nonmetro areas, yet these areas had only 32 percent of the households.

The incidence of inadequate housing is closely related to household incomes, but highest among the very poor in nonmetro areas. For example, 38 percent of the inadequate housing was occupied by households with annual incomes less than $5,000 in 1977, but households with incomes this low represented only 21 percent of the total households. Among the households with incomes from $5,000 to $9,999, the incidence of inadequate housing was about equal to the income distribution—23 percent of the households had incomes this low and they occupied 31 percent of the inadequate housing.

Yet even among the higher income groups, the incidence of inadequate housing was relatively high. Households which had incomes of $10,000 and greater occupied 31 percent of the inadequate housing; 56 percent of all households had incomes this large.

67. LOCAL GOVERNMENTS

In 1977 there were 79,862 units of local government serving the Nation. Two-thirds of these were located outside Standard Metropolitan Statistical Areas (SMSA's). The number of local governments in nonmetropolitan areas was as follows:

Counties	2,488
Municipalities	12,418
School Districts	9,954
Townships	12,791
Special Districts	16,382
Total	53,993

The number of U.S. counties, townships, and municipalities has not changed appreciably in many years, despite the possibility of reducing costs through consolidation. Only school districts have undergone significant consolidation, and even among those the trend toward consolidation has greatly slowed in recent years. While the number of nonmetropolitan school districts declined by 34 percent from 1967 to 1972, it fell only by 10 percent in the 1972–77 period. Overall, the total number of local governments has risen slightly since

1972 because the number of special districts in both metropolitan and nonmetropolitan areas continued to rise.

In terms of equivalents of full-time jobs, local government employment rose an average of 3.5 percent per year from 1967 through 1977. However, there was little growth in 1976 and much slower growth in school employment in 1977. Three-fourths of the 7.6 million local government employees work in SMSA's; yet in relation to area population, employment in nonmetropolitan areas is nearly equal to SMSA's. Education is the dominant function, employing 182 persons for every 10,000 residents, compared to 155 for all other functions.

Nominal spending for local services has increased strikingly. Total direct local expenditures rose 331 percent from $45 billion in 1962 to $194 billion, or $897 per person, in 1977. Local government spending rose less than 8 percent in 1977. Historically, local government spending has been heaviest in the Nation's metropolitan areas, although nonmetropolitan local units have continued to spend nearly as much per person for education as their urban counterparts.

68. DIFFERENTIAL TAX ASSESSMENT

An increasing number of States have revised their property tax laws which apply to farmland. By September 1977, about 45 States had enacted use value or differential assessment laws to modify their property tax codes. Such laws are based on the principle that eligible land is assessed according to its current use and not according to any higher value it may have in other uses. These laws have taken three general forms: Use value assessment, deferred taxation, and contracts and agreements. Some States have combined these categories in provisions of their differential assessment laws; and some have extended the use value assessment principle to open space land.

A use value assessment law values land according to its current use. Further, no penalty is imposed if it is later converted to another use. A deferred tax law is one that taxes land according to current use value; but when the land changes to some other use, the law provides for collecting the deferred tax for several previous years. The amount of deferred tax is the difference in the amount that would have been levied under standard assessment and the amount levied under use value assessment. The number of years for which the deferred tax is collected varies by State, and some States charge interest penalties on the deferred tax. Contract and agreement laws provide for voluntary contracts or agreements between the landowner and the State and local government. The landowner agrees to keep eligible land in agricultural use or some other specified use for a specified number of years. In return, the State or local government grants use value assessment on it.

These laws are usually passed for one or both of two major reasons. The first is a desire to influence land use and encourage the preservation of land for farming or other open space. The second is to provide property tax relief to farmers or other persons who own land which has either a higher market value, or ecological value, or both, but from which a small income is derived relative to the worth of the land.

69. RURAL EDUCATION

Rural persons have a somewhat lower educational level than urban dwellers. In 1975, the median number of school years completed was 12.4 for all persons age 25 and over and living in metropolitan areas. It was 12.1 for the same age group in nonmetropolitan areas. Differences are more pronounced for certain groups. For farmers, median school years completed was 12.0 in 1975. For blacks 25 years and older living in nonmetropolitan areas, the median was 8.4 years. Blacks in the same age category living in metropolitan areas averaged 11.7 years of school. Part of these differences may result from the migration of the better educated.

Functional illiteracy, meaning completion of less than 5 years of education, persists as a problem for some groups. In 1975, 13 percent of metropolitan persons of Mexican origin, age 25 to 44, were classified as functional illiterates, compared with 23 percent of their nonmetropolitan counterparts. For blacks, age 25 to 44, the percentages were 1.5 percent in metropolitan areas and 8 percent in nonmetropolitan areas. Results of two 1975 surveys, funded by the U.S. Office of Education, indicated that about one of five Americans is functionally illiterate in the sense that they cannot exercise the minimal skills of reading, writing, and making simple calculations necessary to function in modern society.

Results of the Department of Health, Education, and Welfare's National Assessment of Educational Progress for 1969–73 considered the achievement level of students up to age 17 in eight subject-matter categories. Studies in small and extremely rural places showed a strong tendency to be below the national median score, particularly with regard to writing, citizenship, mathematics and science. In contrast, students in the urban fringe and high-income metropolitan areas tended to be well above the national median in at least six of the eight categories.

The 1975–76 expenditure per pupil in average daily attendance for nonmetropolitan school systems was $1,070. This compared with $1,380 and $1,260 per pupil for metropolitan central and suburban school systems, respectively. The average for the Nation in 1975–76 was $1,230 per pupil

70. HEALTH

The need to make medical care services more available and accessible to the more than 58 million nonmetropolitan Americans is well documented. Analysts generally agree that the problem of rurality, economic poverty, and poor health is a circular one. Even if medical care services were evenly distributed across the Nation, it is likely that nonmetropolitan residents with chronically low incomes would still have serious difficulty receiving adequate care in a complex medical system where access is based mainly on ability to pay. The following table indicates that there are dramatic differences in the availability of medical personnel:

SMSA and county classification	Non-Federal physicians per 100,000 population		
	1960	1970	1974
U.S. total	117	137	152
SMSA total	138	162	181
Non-SMSA total	69	72	76
Greater than 50,000	90	92	100
Potential SMSA	81	93	102
25,000 to 50,000	71	71	75
10,000 to 25,000	57	54	52
Less than 10,000	49	43	41

Health status is associated with many factors, including use of medical resources. A commonly used measure of health status is infant mortality. The 5-year infant mortality rate for 1969–73 was greater in nonmetropolitan areas than metropolitan areas—20.7 infant deaths per 1,000 live births compared to 18.8, respectively.

Many rural areas are so isolated and sparsely populated that a full-time physician will never be economically feasible. There are several nontraditional approaches to health care delivery presently being demonstrated. These alternatives include part-time physicians, mid-level health practitioners, and various preceptorship programs. The Rural Health Clinics Services Act of 1977 (P.L. 95–210) is a landmark piece of legislation and of great importance to rural residents. The Act allows Medicare and Medicaid reimbursement of rural health clinic services provided by mid-level health practitioners without direct supervision of a physician. There is still a dearth of innovative health delivery systems suitable for the very isolated areas, however. An example of such a system is the Emergency Medical Coordinators, who are local residents trained to respond immediately with the most basic of care until an individual in need can be treated with greater medical technology and skills.

Consumer Health Education

This issue concentrates on the assertions that pandemics and epidemics due to infectious agents have been largely eliminated; and unhealthy, sedentary life styles have emerged as the chief villains causing needless morbidity and early deaths. Part of the evidence is that the principal causes of death in the Nation are heart disease, cancer, stroke, and accidents. Thus, it is argued that special educational efforts and supportive programs would be more effective in improving health than would incremental improvements in medicine. Ann Somers, Johns Hopkins University, uses a study by Dr. Lester Breslow, Dean of the School of Public Health, University of the City of Los Angeles, to document the need for health education:

> "Dr. Breslow and colleagues conducted studies of 7,000 adults over 5-1/2 years. The results showed that seven simple health habits—three meals a day at regular intervals, eating breakfast, moderate exercise, 7—8 hours sleep a night, moderate weight, no smoking, and no alcohol, or only in moderation—were associated with longer life.
>
> Specifically, a 45-year old man who practices 0-3 of these habits can expect to live to about 67. A man with 6-7 of these can expect to live to 78, a difference of 11 years."

71. RECREATION

Recreation uses are getting more emphasis on both public and private lands.

In fiscal year 1978, the Forest Service furnished 218.5 million visitor-days (12 hours of recreation use) of recreation. People were attracted by 111,300 developed family camp and picnic units, 311 swimming developments, 963 boating sites, and 217 winter sports centers. If all these facilities were fully occupied at the same time, they could take care of 1.15 million persons.

Other functions of the Forest Service also contribute to recreation. The National Forests maintain watersheds on lands which provide most of the Nation's big river water supply. It also supervises mining and other surface activities in the National Forests and protects lands against fire and erosion. These activities enhance hunting and fishing opportunities. In fiscal year 1978, the National Forests supplied 16.6 million visitor days of fishing and 15 million of hunting.

Thousands of farm families and other rural residents each year convert part or all of their land to recreation uses, either for pleasure or profit. In fiscal year 1976 (July 1975–June 1976), the Soil Conservation Service (SCS) helped landowners convert more than 200,000 acres to wildlife and recreation areas. The increase in second homes continues the trend for converting suitable private rural land to recreation uses.

Nearly 1,300 landowners and operators established or expanded commercial recreation enterprises with assistance from SCS in fiscal year 1976. More than 21,000 private noncommercial recreation facilities and 311 public ones also were established or expanded with SCS help.

While second homes and such other developments as commercial resort complexes, golf courses, and swimming pools provide visible signs of recreation use, the bulk of outdoor recreation by most Americans still involves the simple and inexpensive enjoyment of the outdoors. Driving and walking for pleasure, picnicking, hiking, camping, and being outdoors are the kinds of recreation people enjoy most frequently in rural areas.

In fiscal year 1978, nearly 40,000 ponds were built as part of the conservation program on farms and ranches, and nearly 40,000 ponds were stocked and managed for fishing. SCS also helped landowners improve more than 14.6 million acres of land and water for wildlife during the year.

By the end of 1978, more than 500 public recreation developments had been completed or were underway in Public Law 566 small watershed projects in 47 States. This is more than $400 million investment (43 percent Federal and 57 percent local) will provide more than 36 million visitor days of recreation each year. The developments include more than 120,000 surface acres of water for swimming, fishing, boating, and waterskiing and facilities for camping, hiking, and picnicking.

72. INTERLOCAL AND REGIONAL COOPERATION

Cooperation among units of government has proved to be an economical means of providing services not otherwise available. For rural areas, it seems especially useful for overcoming difficulties caused by small and scattered populations, inadequate financial resources and areas that are too small for administrative efficiency.

A community that wants to attract new residents and businesses may find it beneficial to cooperate with other towns and share in the cost of furnishing services it cannot afford by itself. Rural communities work together in a variety of ways. Mutual aid is one way. Such an approach is commonly used for fire and police protection. A second approach is for one community to sell a particular service to another. Still another method of cooperation is joint action, especially for large projects such as building and operating a hospital or an airport. Various methods of dividing costs and creating joint committees or governing boards are worked out for such projects.

Many counties in the United States have found it advantageous through joint-powers agreements to form organizations to handle special problems or take advantage of opportunities that, because of economics or staff, would not otherwise be available. The best known are the sub-State districts formed in response to the Office of Management and Budget (OMB) to help coordinate activities. These sub-State districts are known by various names such as sub-State planning districts, regional planning districts, or regional planning commissions. There are other more specialized multicounty organizations. Often, these assume the responsibilities of the sub-State planning district but, if not, they do work in close coordination with that district. These organizations include Resource Conservation and Development (RC&D) areas, Economic Development Districts (EDD), and Local Development Districts (LDD). These multicounty organizations are distinguished by their efforts to seek the leadership of local elected officials and local leaders and to involve citizens in decisionmaking.

Other multicounty organizations are formed to serve highly specialized purposes. These have a selected cadre of professionals to guide their operations. Law Enforcement Assistance Administration (LEAA) and Health Service Areas (HSA) are examples.

VI. APPENDIX

73. TABLES

Table 14.—Agricultural's capacity to produce, 1951, 1956, 1961, and 1966–78

Year	Farms		Farm population			Man-hours		Crops		Livestock		Overall
	Number	Change from preceding year	Number	Change from preceding year	Proportion of U.S. population	Total used	Output per man-hour index 1967 = 100	Production volume index 1967 = 100	Production per acre index 1967 = 100	Production volume index 1967 = 100	Production per unit index 1967 = 100	Farm output 1967 = 100
	Thousands				Percent	Millions						
1951	5,428	−220	21,890	−1,158	14.2	15,222	35	78	70	78	75	76
1956	4,515	−140	18,712	−366	11.1	12,028	48	82	76	84	82	83
1961	3,825	−138	14,803	−832	8.1	9,400	68	91	92	91	92	92
1966	3,257	−99	11,595	−768	5.9	6,858	92	95	97	97	99	95
1967	3,162	−95	10,875	−720	5.5	6,677	100	100	100	100	100	100
1968	3,071	−91	10,454	−421	5.2	6,421	106	103	105	100	N.A.	102
1969	3,000	−71	10,307	−147	5.1	6,198	110	104	106	101	N.A.	102
1970	2,949	−51	9,712	−595	4.7	5,896	115	100	102	105	N.A.	101
1971	2,902	−47	9,425	−287	4.6	5,741	128	112	112	106	N.A.	110
1972	2,860	−42	9,610	−185	4.6	5,433	136	113	115	107	N.A.	110
1973	2,823	−37	9,472	−138	4.5	5,321	140	119	116	105	N.A.	112
1974	2,795	−28	9,264	−208	4.4	5,178	136	110	104	106	N.A.	106
1975	2,767	−28	8,864	−400	4.2	4,990	152	121	112	101	N.A.	114
1976	2,738	−29	8,253	−611	3.8	4,807	162	121	111	105	N.A.	117
1977	2,706	−32	7,806	−447	3.6	4,659	173	129	116	106	N.A.	121
1978	2,680	−26	N.A.	N.A.	N.A.	4,652	171	128	119	108	N.A.	120

N.A. = Not Available.

Table 15.—Agricultural prices, farm income, assets, and exports, 1951, 1956, 1961, and 1966–79

Year	Parity ratio		Income in agriculture				Assets of proprietors[1]			Harvested crop acreage			
	Unad-justed	Ad-justed	Farm operators' net income from farming		Farm residents' disposable personal income		Total Assets	Total liabil-ities	Propri-etors' equities	Total	Domes-tic use per capita	For export	Value of agri-cultural exports
			Aggregate	Per farm	Per capita	As per-cent of nonfarm per capita income							
	(1910–14 = 100)		Billion dollars	Dollars	Dollars	Percent	Billion dollars	Billion dollars	Billion dollars	Million acres	Acres	Million acres	Million dollars
1951	107	108	15.9	2,940	988	64.4	154.3	13.0	141.3	344	1.85	59	3,411
1956	83	84	11.3	2,490	877	47.7	173.6	18.8	154.8	324	1.57	60	3,496
1961	79	83	12.0	3,130	1,182	57.8	210.8	26.2	184.6	303	1.28	67	4,946
1966	79	85	14.0	4,290	1,894	71.7	260.8	40.7	220.1	294	1.15	69	6,747
1967	73	79	12.3	3,900	1,925	69.0	274.2	44.1	230.1	306	1.20	69	6,821
1968	73	79	12.3	4,010	2,099	70.5	288.0	47.4	240.6	300	1.23	54	6,383
1969	73	79	14.3	4,760	2,332	74.0	302.8	50.5	252.3	290	1.13	61	5,826
1970	72	77	14.2	4,800	2,520	74.1	314.9	53.0	261.9	293	1.08	72	6,718
1971	71	75	14.6	5,040	2,722	75.0	326.0	54.5	271.5	305	1.17	62	7,753
1972	74	79	18.7	6,530	3,244	83.9	351.8	59.1	292.7	294	1.97	91	8,046
1973	91	94	33.3	11,810	4,700	110.2	394.8	65.3	327.5	321	1.07	96	12,902
1974	86	87	26.1	9,350	4,355	93.5	478.5	74.1	404.4	328	1.08	99	21,293
1975	76	76	24.5	8,840	4,520	88.4	517.5	81.8	435.7	336	1.10	100	21,578
1976	71	72	18.7	6,820	4,314	77.7	580.2	90.8	489.4	337	1.12	97	22,760
1977	66	68	19.8	7,300	4,946	81.6	655.8	102.7	553.1	344	1.07	111	24,000
1978	71	72	27.9	10,430	6,069	90.6	713.0	119.3	593.7	336	1.02	113	27,300
1979	—	—	—	—	—	—	820.2	137.5	682.7	—	—	—	—

[1] January.

Table 16.—Leading States for cash receipts, 1977
(Million dollars)

Commodity	United States		Leading 10 States by rank									
	Rank	Value	1	2	3	4	5	6	7	8	9	10
All commodities		96,084	Calif 9,370	Iowa 7,065	Texas 6,910	Ill 5,792	Minn 4,323	Nebr 3,980	Kans 3,849	Ind 3,239	Wis 3,152	Mo 2,870
All livestock		47,565	Iowa 4,300	Texas 3,525	Calif 2,914	Wis 2,556	Nebr 2,256	Mass 2,239	Kans 2,224	Ill 1,873	Mo 1,677	Colo 1,499
All crops		48,519	Calif 6,456	Ill 3,920	Texas 3,385	Iowa 2,765	Minn 2,084	Ind 1,974	Fla 1,880	Nebr 1,723	Ohio 1,637	Kans 1,625
Cattle and calves	1	20,230	Texas 2,547	Iowa 1,795	Kans 1,743	Nebr 1,655	Colo 1,241	Calif 987	Okla 943	Mo 737	S Dak 681	Minn 651
Dairy products	2	11,776	Wis 1,890	Calif 1,181	N Y 983	Minn 817	Pa 809	Mich 452	Ohio 437	Iowa 372	Texas 357	Mo 271
Corn	3	8,656	Ill 1,870	Iowa 1,247	Ind 1,002	Nebr 965	Minn 567	Ohio 540	Texas 355	Kans 266	Mich 347	Mo 215
Soybeans	4	8,541	Ill 1,719	Iowa 1,395	Ind 719	Ohio 622	Minn 593	Mo 590	Ark 501	Miss 381	La 319	Tenn 300
Hogs	5	7,327	Iowa 1,982	Ill 941	Ind 555	Mo 514	Minn 509	Nebr 436	Kans 291	Ohio 254	S Dak 225	N C 206
Wheat	6	5,152	Kans 907	N Dak 532	Okla 466	Minn 390	Texas 315	Mont 306	Wash 289	Nebr 284	S Dak 205	Colo 152
Cotton lint	7	3,580	Texas 1,243	Calif 789	Miss 380	Ariz 313	Ark 272	La 161	Ala 77	Okla 66	Mo 64	Tenn 63
Broilers	8	3,111	Ark 489	Ga 430	Ala 353	N C 322	Miss 240	Texas 186	Md 186	Del 146	Calif 132	Pa 91
Eggs	9	2,917	Calif 344	Ga 287	Ark 176	N C 162	Ala 158	Ind 136	Pa 129	Texas 119	Fla 111	Maine 99
Tobacco	10	2,331	N C 866	Ky 619	S C 171	Tenn 164	Va 163	Ga 150	Conn 34	Fla 31	Md 30	Ohio 29

Table 16.—Leading States for cash receipts, 1976
(Million dollars)

Greenhouse and nursery (excludes mushrooms)	11	2,041	Calif 571	Fla 249	Pa 114	Ohio 104	N Y 87	Ill 67	Mich 67	Ore 58	N J 56	N C 55
Hay	12	1,455	Calif 361	Ariz 73	Colo 71	Wash 65	Idaho 60	Wis 56	Minn 51	Kans 51	Texas 47	Nebr 42
Potatoes	13	1,211	Idaho 229	Wash 148	Calif 119	Maine 115	Ore 67	Wis 62	N Dak 56	N Y 50	Fla 44	Mich 44
Sorghum grain	14	1,113	Texas 433	Kans 257	Nebr 201	Mo 70	Okla 30	Ark 24	Calif 21	N Mex 17	S Dak 16	Ariz 14
Rice	15	958	Ark 368	Texas 211	La 171	Calif 163	Miss 38	Mo 6	–	–	–	–
Tomatoes	16	950	Calif 579	Fla 156	Ohio 46	N J 21	Ind 16	Ala 14	Mich 14	Texas 11	Pa 10	S C 10
Turkeys	17	905	Minn 125	Calif 122	N C 110	Ark 68	Mo 59	Texas 57	Va 50	Iowa 42	Wis 40	Colo 38
Peanuts	18	784	Ga 315	Ala 131	N C 90	Texas 81	Okla 58	Va 57	Fla 35	S C 6	N Mex 5	Miss 2
Grapes	19	773	Calif 702	N Y 22	Wash 18	Ariz 10	Pa 7	Mich 6	Ark 1	Ohio 1	N C 1	Mo 1
Oranges	20	694	Fla 523	Calif 140	Texas 18	Ariz 9	La 3	Hawaii 1	–	–	–	–
Apples	21	627	Wash 199	N Y 73	Mich 52	Pa 37	N C 29	Calif 27	Va 26	W Va 20	Idaho 15	Mass 12
Forestry products	22	625	N C 80	Wash 73	Ga 57	Wis 55	Ala 49	Ore 37	Ariz 22	S C 21	Va 21	Texas 19
Sugar beets	23	518	Calif 125	Minn 88	N Dak 55	Idaho 43	Mich 40	Colo 29	Wash 29	Nebr 29	Mont 22	Wyo 21
Barley	24	500	N Dak 108	Calif 94	Minn 71	Mont 63	Idaho 47	S Dak 24	Colo 20	Wash 15	Ore 10	Wyo 8
Lettuce	25	448	Calif 305	Ariz 71	Fla 20	Texas 8	N Mex 6	Colo 6	N Y 6	N J 5	Ohio 4	Wis 3

---

[1] Minor States estimate.

Table 17.—Income of farmers and farm people from all sources, 1940 and 1945–78 (in billions)—unless otherwise noted

Year	Cash receipts from marketings	Government payments to farmers	Cash income from farming	Other income from farming[1]	Farming gross before inventory adjustment[2]	Total gross after inventory adjustment	Income from off-farm sources[3]	Total gross income all sources	Gross per farm all sources	Total production expenses	Production expenses per farm	Net from farming before inventory[4] adjustment	Net from farming after inventory adjustment	Total for family personal spending and investment[5]	Number farm operators	Total income per farm for family personal spending and investment
									Dol.		Dol.				Mil.	Dol.
1940	$ 8.4	$ 0.7	$ 9.1	$2.2	$11.1	$11.3	$ 3.5	$14.8	$2,336	$6.9	$1,080	$4.2	$4.5	$8.0	6.35	$1,256
1945	21.7	0.74	22.4	3.0	25.8	25.4	6.0	31.4	5,261	13.1	2,189	12.8	12.3	18.3	5.97	3,072
1946	24.8	0.77	25.6	4.0	29.5	29.6	6.3	35.9	6,060	14.5	2,447	15.0	15.1	21.4	5.93	3,613
1947	29.6	0.31	29.9	2.5	34.1	32.4	7.2	39.6	6,744	17.0	2,901	17.1	15.4	22.6	5.87	3,843
1948	30.2	0.26	30.5	6.0	34.7	36.5	7.8	44.3	7,627	18.8	3,238	16.0	17.7	25.5	5.80	4,389
1949	27.8	0.19	28.0	2.8	31.6	30.8	7.9	38.7	6,763	18.0	3,142	13.6	12.8	20.7	5.72	3,621
1950	28.5	0.28	28.7	4.4	32.3	33.1	8.0	41.1	7,280	19.5	3,445	12.8	13.6	21.6	5.65	3,835
1951	32.9	0.29	33.1	5.1	37.1	38.3	8.4	46.7	8,600	22.3	4,118	14.8	15.9	24.3	5.43	4,483
1952	32.5	0.28	32.8	4.9	36.8	37.8	8.7	46.5	8,936	22.8	4,385	14.0	15.0	23.7	5.20	4,552
1953	31.0	0.21	31.2	3.2	35.1	34.4	8.2	42.6	8,556	21.5	4,307	13.6	13.0	21.2	4.98	4,249
1954	29.8	0.26	30.1	4.1	33.7	34.2	7.4	41.6	8,666	21.8	4,545	11.9	12.4	19.8	4.80	4,121
1955	29.5	0.23	29.7	3.8	33.3	33.5	7.7	41.2	8,847	22.2	4,764	11.1	11.3	19.0	4.65	4,083
1956	30.4	0.55	31.0	3.0	34.4	34.0	8.0	42.0	9,295	22.7	5,030	11.7	11.3	19.3	4.51	4,265
1957	29.7	1.02	30.7	4.1	34.2	34.8	8.0	42.8	9,787	23.7	5,422	10,5	11.1	19.1	4.37	4,365
1958	33.5	1.09	34.5	4.4	38.1	39.0	8.0	47.0	11,093	25.8	6,093	12.3	13.2	21.2	4.23	5,000
1959	33.6	0.68	34.3	3.6	37.9	37.9	8.4	46.3	11,299	27.2	6,633	10.7	10.7	19.1	4.10	4,666
1960	34.2	0.70	35.0	3.9	38.5	38.9	8.5	47.4	11,954	27.4	6,909	11.1	11.5	20.0	3.96	5,046
1961	35.2	1.49	36.7	3.9	40.2	40.5	9.2	49.7	13,000	28.6	7,473	11.6	12.0	21.1	3.83	5,522
1962	36.5	1.75	38.2	4.1	41.7	42.3	9.9	52.2	14,152	30.3	8,201	11.4	12.1	22.0	3.69	5,951
1963	37.5	1.70	39.2	4.2	42.7	43.4	11.0	54.4	15,226	31.6	8,845	11.1	11.8	22.8	3.57	6,380
1964	37.3	2.18	39.5	2.8	43.1	42.3	11.6	54.0	15,603	31.8	9,203	11.3	10.5	22.1	3.46	6,401

Table 17.—Income of farmers and farm people from all sources, 1940 and 1945–78 (in billions)—unless otherwise noted

1965	39.4	2.46	41.8	4.7	45.5	46.5	12.7	59.3	17,662	33.7	10,026	11.9	12.9	25.6	3.36	7,636
1966	43.4	3.28	46.7	3.8	50.6	50.5	13.9	64.3	19,757	36.5	11,209	14.0	14.0	27.8	3.26	8,548
1967	42.8	3.08	45.9	4.6	49.9	50.5	14.5	65.0	20,561	38.2	12,076	11.7	12.3	26.8	3.16	8,486
1968	44.2	3.46	47.6	4.2	51.7	51.8	15.5	67.3	21,919	39.5	12,871	12.2	12.3	27.8	3.07	9,049
1969	48.2	3.79	52.0	4.4	56.3	56.4	16.6	73.0	24,340	42.1	14,039	14.2	14.3	30.9	3.00	10,301
1970	50.5	3.72	54.3	4.3	58.6	58.6	17.4	76.0	25,762	44.4	15,064	14.1	14.2	31.5	2.95	10,698
1971	52.9	3.15	56.0	6.0	60.6	62.0	18.8	80.8	27,853	47.4	16,322	13.2	14.6	33.5	2.90	11,530
1972	61.2	3.96	65.2	5.8	70.1	71.0	20.6	91.6	32,026	52.3	18,292	17.8	18.7	39.3	2.86	13,734
1973	87.1	2.61	89.7	9.2	95.5	98.9	23.8	122.7	43,453	65.6	23,224	29.9	33.3	57.1	2.82	20,229
1974	92.4	0.53	93.0	5.4	100.0	98.3	26.5	124.8	44,671	72.2	25,835	27.7	26.1	52.6	2.80	18,836
1975	88.2	0.81	89.0	11.3	96.9	100.3	27.5	127.8	46,184	75.9	27,417	21.1	24.5	51.9	2.77	18,767
1976	94.8	0.73	95.5	6.3	104.2	101.8	30.3	132.1	48,243	83.1	30,362	21.0	18.7	49.0	2.74	17,882
1977	95.7	1.82	97.5	11.1	107.5	108.5	31.9	140.4	51,890	88.8	32,807	18.7	19.8	51.6	2.71	19,083
1978	111.0	3.03	114.1	11.9	124.9	126.0	34.3	160.3	59,976	98.1	36,713	26.8	27.9	62.2	2.67	23,263

[1] Predominantly noncash income from net change in value of farm inventories, gross value of farm products used on the farm, and a rental value for farm dwellings; also cash income from recreation, machine hire and custom work.

[2] Gross income from farming before adjustments for changes in value of farm inventory of crops and livestock. The next column does allow for an increase or decrease in value of inventories.

[3] Includes nonfarm wages, salaries, interest, dividends, rental property, unemployment compensation, social security, etc., but does not include capital gains income from off-farm sources.

[4] Includes gross income from farming after inventory adjustment plus off-farm income of farm operator families.

[5] Net income from farming after change in value of farm inventory, plus off-farm income of farm operator families.

Table 18.—Wheat: Area, yield, supply, disappearance, and prices, 1960–78

Year beginning June 1	Area		Yield per harvested acre	Supply				Disappearance			Prices received by farmers
	Planted	Harvested		Beginning stock	Production	Imports[1]	Total	Domestic use	Exports[1]	Total	
	1,000 acres		Bushels	Million bushels							Dollars/bushel
1960	54,906	51,879	26.1	1,384	1,355	8	2,747	591	654	1,245	1.74
1961	55,707	51,571	23.9	1,502	1,232	6	2,741	604	716	1,320	1.83
1962	49,274	43,688	25.0	1,421	1,092	5	2,518	599	649	1,248	2.04
1963	53,364	45,506	25.2	1,270	1,147	4	2,421	581	846	1,427	1.85
1964	55,672	49,762	25.8	994	1,283	1	2,279	635	723	1,358	1.37
1965	57,361	49,560	26.5	921	1,316	1	2,238	725	852	1,577	1.35
1966	54,105	49,613	26.3	661	1,305	1	1,967	683	771	1,454	1.63
1967	67,264	58,353	25.8	513	1,508	1	2,021	626	765	1,391	1.39
1968	61,860	54,765	28.4	630	1,557	1	2,188	740	544	1,284	1.24
1969	53,450	47,146	30.6	904	1,443	3	2,350	764	603	1,367	1.25
1970	48,739	43,564	31.0	983	1,352	2	2,336	772	741	1,513	1.33
1971	53,822	47,685	33.9	823	1,619	1	2,442	849	610	1,459	1.34
1972	54,913	47,303	32.7	983	1,546	1	2,531	799	1.135	1,934	1.76
1973	59,254	54,148	31.6	597	1,711	3	2,311	754	1,217	1,971	3.95
1974	71,044	65,368	27.3	340	1,782	3	2,125	672	1,018	1,690	4.09
1975	74,786	69,391	30.6	435	2,122	2	2,559	721	1,173	1,894	3.56
1976	80,202	70,771	30.3	665	2,142	3	2,810	748	950	1,698	2.73
1977	75,119	66,461	30.6	1,112	2,036	2	3,150	849	1,124	1,973	2.33
1978	66,094	56,839	31.6	1,177	1,799	1	2,977	861	1,194	2,055	2.94

[1] Imports and exports include flour and other products expressed in wheat equivalent.

•Totals may not add due to independent rounding.

Table 19.—Corn (grain only): Area, yield, supply, disappearance, and prices, 1960–78

Marketing year[1]	Area		Yield per harvested acre	Supply				Disappearance			Prices received by farmers
	Planted for all purposes	Harvested for grain		Beginning stocks	Production	Imports[2]	Total	Domestic use	Exports[2]	Total	
	1,000 acres		Bushels	Million bushels							Dollars/bushel
1960	81,425	71,422	54.7	1,787	3,907	1	5,695	3,387	292	3,679	1.00
1961	65,919	57,634	62.4	2,016	3,598	1	5,615	3,527	435	3,962	1.10
1962	65,017	55,726	64.7	1,653	3,606	1	5,260	3,479	416	3,895	1.12
1963	68,771	59,227	67.9	1,365	4,019	1	5,385	3,348	500	3,848	1.11
1964	65,823	55,369	62.9	1,537	3,484	1	5,022	3,305	570	3,875	1.17
1965	65,171	55,392	74.1	1,147	4,103	1	5,251	3,722	687	4,409	1.16
1966	66,347	57,002	73.1	842	4,168	1	5,011	3,698	487	4,184	1.24
1967	71,156	60,694	80.1	826	4,860	1	5,687	3,885	633	4,518	1.03
1968	65,126	55,980	79.5	1,169	4,450	1	5,620	3,966	536	4,502	1.08
1969	64,264	54,574	85.9	1,118	4,687	1	5,806	4,189	612	4,801	1.16
1970	66,863	57,358	72.4	1,005	4,152	4	5,161	3,978	517	4,495	1.33
1971	74,179	64,123	88.1	667	5,646	1	6,314	4,392	796	5,187	1.08
1972	67,126	57,513	97.0	1,127	5,580	1	6,708	4,742	1,258	6,000	1.57
1973	72,253	62,143	91.3	708	5,671	1	6,380	4,653	1,243	5,896	2.55
1974	77,935	65,405	71.9	484	4,701	2	5,187	3,677	1,149	4,826	3.02
1975	78,583	67,505	86.3	361	5,829	2	6,192	4,022	1,711	5,793	2.54
1976	84,374	71,300	87.9	399	6,266	3	6,668	4,100	1,684	5,784	2.15
1977	82,680	70,006	91.0	884	6,371	1	7,256	4,285	1,800	6,085	2.03
1978	79,700	70,000	101.2	1,104	7,082	1	8,187	4,775	2,175	6,950	2.20

[1] Marketing year beginning October 1.

[2] Grain and grain equivalent of corn products.

[3] Includes an allowance for unredeened loans and purchase-agreement deliveries.

[4] Estimated.

[5] October-August average.

Table 20.—Soybeans: Area, yield, supply, disappearance, and prices, 1960–79

Marketing year[1]	Area		Yield per harvested acre	Supply			Disappearance			Crushed for oil	Prices received by farmers
	Planted	Harvested		Beginning stocks	Production	Total	Domestic use	Exports	Total		
	1,000 acres		Bushels	Million bushels							Dollars/bushels
1960	24,440	23,655	23.5	51.8	555.1	606.9	445.1	134.7	579.8	406.1	2.13
1961	27,787	27,003	25.1	27.1	678.6	705.7	477.9	149.4	627.4	431.4	2.28
1962	28,418	27,608	24.2	78.3	669.2	747.5	521.0	180.5	701.5	472.8	2.34
1963	29,462	28,615	24.4	46.0	699.2	745.2	490.7	187.2	677.9	436.8	2.51
1964	31,721	30,793	22.8	67.3	700.9	768.2	526.3	212.2	738.5	479.0	2.62
1965	35,227	34,449	24.5	29.7	845.6	875.3	589.1	250.6	839.7	537.5	2.54
1966	37,294	36,546	25.4	35.6	928.5	964.1	612.4	261.6	874.0	559.4	2.75
1967	40,819	39,805	24.5	90.1	976.4	1,066.6	633.7	266.6	900.2	576.4	2.49
1968	42,265	41,391	26.7	166.3	1,107.0	1,273.3	659.7	286.8	946.4	605.9	2.43
1969	42,534	41,337	27.4	326.8	1,133.1	1,460.0	797.5	432.6	1,230.1	737.3	2.35
1970	43,082	42,249	26.7	229.8	1,127.1	1,356.9	824.4	433.8	1,258.2	760.1	2.85
1971	43,476	42,705	27.5	98.8	1,176.1	1,274.9	786.1	416.8	1,202.9	720.4	3.03
1972	46,866	45,683	27.8	72.0	1,270.6	1,342.6	803.5	479.4	1,282.9	721.8	4.37
1973	56,549	55,667	27.8	59.6	1,547.5	1,607.2	897.3	539.1	1,436.4	821.3	5.68
1974	52,479	51,341	23.7	170.8	1,216.3	1,387.0	778.2	420.7	1,198.9	701.3	6.64
1975	54,550	53,579	28.9	188.2	1,547.4	1,735.5	935.5	555.1	1,490.6	865.1	4.92
1976	50,226	49,358	26.1	244.9	1,287.6	1,532.5	865.6	564.0	1,429.6	790.2	6.81
1977[1]	58,760	57,612	30.6	102.9	1,761.8	1,864.7	1,003.2	700.5	1,703.7	926.7	5.88
1978[2]	64,044	63,003	29.2	161.1	1,842.6	2,003.7	1,083.7	765.0	1,848.7	1,020.0	6.75
1979[3]	71,654	70,349	30.3	155.0	2,129.3	2,284.3	—	—	—	—	—

---

[1] Preliminary.

[2] Estimated.

[3] August 1 indications.

Table 21.—Cotton, all kinds: Area, yield, supply, disappearance, and prices, 1963–78

Marketing year[1]	Area		Yield per harvested acre	Supply				Disappearance			Prices received by farmers[3]
	Planted	Harvested		Beginning stocks	Production	Imports	Total	Domestic mill use[2]	Exports	Total	
	1,000 acres		Pounds	1,000 bales							Cents per pound
1963	14,843	14,212	517	11,136	15,334	135	26,565	8,696	5,775	14,471	33.4
1964	14,836	14,055	517	12,351	15,145	118	27,614	9,261	4,195	13,456	30.9
1965	14,152	13,613	527	14,249	14,938	118	29,305	9,596	3,035	12,631	29.2
1966	10,349	9,553	480	17,028	9,557	105	26,690	9,574	4,832	14,406	21.5
1967	9,450	7,997	447	12,344	7,443	149	19,936	9,077	4,361	13,438	26.5
1968	10,913	10,159	516	6,584	10,926	68	17,578	8,332	2,825	11,157	22.9
1969	11,883	11,051	434	6,544	9,990	52	16,586	8,114	2,878	10,992	21.8
1970	11,945	11,155	438	5,843	10,192	37	16,072	8,204	3,897	12,101	22.8
1971	12,355	11,471	438	4,203	10,477	72	14,752	8,259	3,385	11,644	28.1
1972	14,001	12,984	507	3,258	13,704	34	16,996	7,769	5,311	13,080	27.2
1973	12,840	11,970	520	4,221	12,974	48	17,243	7,472	6,123	13,595	44.4
1974	13,679	12,547	442	3,808	11,540	34	15,382	5,860	3,926	9,786	42.7
1975	9,493	8,796	453	5,708	8,302	92	14,102	7,250	3,311	10,561	51.1
1976	11,656	10,914	465	3,681	10,581	38	14,300	6,674	4,784	11,458	63.8
1977	13,694	13,275	520	2,928	14,389	5	17,322	6,483	5,484	11,967	52.1
1978	13,360	12,370	421	5,347	10,856	10	16,213	6,265	6,330	12,595	58.5[4]

[1] Marketing year beginning August 1.

[2] Adjusted to crop-year basis.

[3] Upland cotton, weighted season average price received by farmers.

[4] Average to April 1, 1979.

Table 22.—Cattle and calves: Inventory numbers, calf crop, disposition, production and prices, 1960–78[1]

Year	Inventory Jan. 1[2]	Calf crop	Inshipments	Marketings[3]		Farm slaughter[4]	Deaths		Production[5]	Marketings[3]	Price per 100 pounds	
				Cattle	Calves	Cattle and calves	Cattle	Calves			Cattle	Calves
	1,000 head								1,000 pounds		Dollars	
1960	96,236	39,355	13,477	34,254	12,034	1,195	1,567	2,533	28,795,880	35,722,510	20.40	22.90
1961	97,700	40,180	14,761	35,138	11,898	1,218	1,532	2,486	29,902,448	36,821,343	20.20	23.70
1962	100,369	41,441	16,583	36,403	12,182	1,194	1,583	2,542	30,774,859	37,668,658	21.30	25.10
1963	104,488	42,268	16,182	37,863	11,918	1,213	1,560	2,480	32,776,777	40,033,776	19.90	24.00
1964	107,903	43,809	15,595	40,280	12,552	1,242	1,595	2,637	34,836,138	42,655,520	18.00	20.40
1965	109,000	43,928	17,464	43,482	12,603	1,196	1,641	2,607	34,002,808	44,623,119	19.90	22.00
1966	108,862	43,537	18,624	45,038	12,488	665	1,625	2,424	34,949,625	46,284,623	22.20	26.00
1967	108,783	43,803	18,597	44,781	12,365	622	1,533	2,512	36,122,064	46,684,824	22.30	26.30
1968	109,371	44,315	19,509	45,860	12,742	568	1,527	2,485	36,530,247	47,494,093	23.40	27.60
1969	110,015	45,177	19,942	45,559	12,598	486	1,532	2,591	37,146,953	47,194,719	26.20	31.60
1970	112,369	45,871	20,059	46,926	12,036	462	1,583	2,714	39,342,987	49,459,720	27.10	34.50
1971	114,578	46,738	22,673	49,143	12,086	456	1,634	2,808	39,434,379	50,685,799	29.00	36.40
1972	117,862	47,682	24,831	51,043	12,164	503	1,780	3,346	41,225,193	53,141,798	33.50	44.70
1973	121,539	49,194	24,133	48,369	11,652	570	2,099	4,388	44,231,455	51,022,731	42.80	56.60
1974	127,788	50,873	18,103	48,383	9,514	729	2,006	4,104	42,760,575	50,208,435	35.60	35.20
1975	132,028	50,183	20,095	54,331	12,253	750	2,396	4,596	40,878,134	54,877,016	32.30	27.20
1976	127,980	47,440	21,238	54,410	12,525	722	1,821	3,369	41,368,299	57,169,770	33.70	34.20
1977	122,810	46,088	23,241	56,342	12,722	700	2,000	4,000	40,829,023	58,426,941	34.50	36.90
1978	116,375	43,839	23,281	54,437	11,965	550	1,900	3,780	39,812,094	57,185,759	48.50	59.10

---

[1] Balance sheet estimates. Total of marketings, farm slaughter, deaths and on hand end of year equals total of births, inshipments, and on hand beginning of year. Includes Alaska and Hawaii beginning 1961. [2] All cattle and calves. [3] Excludes interfarm sales.

[4] Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial meat production estimates beginning with January 1966. Combined beginning 1961.

[5] Adjustments made for inshipments and changes in inventory.

Table 23.—Hogs: Inventory numbers, pig crop, disposition, production and prices, 1960–78[1]

Year	Inventory Dec. 1[2]	Pig crop	Inship- ments	Market- ings[3]	Farm slaughter[4]	Deaths	Produc- tion[5]	Market- ings[3]	Price per 100 pounds
	1,000 head						1,000 pounds		Dollars
1960	59,026	88,216	2,500	79,831	5,114	9,223	19,203,234	18,622,151	15.30
1961	55,560	92,713	2,293	80,326	4,639	8,984	20,166,822	18,917,418	16.60
1962	56,619	93,608	2,639	81,743	4,093	9,037	20,274,620	19,310,335	16.30
1963	57,993	94,056	2,657	86,163	3,795	7,991	20,960,460	20,273,936	14.90
1964	56,757	87,544	2,718	86,086	3,269	6,872	20,216,732	20,487,965	14.80
1965	56,106	78,941	2,364	78,127	2,678	6,089	18,252,141	18,426,743	19.60
1966	50,519	87,604	2,489	75,761	1,375	6,351	19,148,989	17,773,114	23.50
1967	57,125	91,668	2,855	85,256	1,301	6,273	20,636,444	19,948,881	19.10
1968	58,818	94,156	3,181	87,726	1,262	6,338	21,034,221	20,381,499	18.50
1969	60,829	88,676	3,092	88,074	1,134	6,343	20,600,325	20,708,223	22.20
1970	57,046	101,714	3,211	86,919	1,235	6,532	21,822,826	20,347,354	22.70
1971	67,285	97,924	3,639	98,644	1,210	6,584	22,832,335	23,147,614	17.50
1972	62,412	90,574	3,360	89,555	1,158	6,617	20,918,802	20,922,577	25.10
1973	59,017	88,123	3,902	82,419	1,095	6,914	20,154,425	19,606,900	38.40
1974	60,614	83,744	3,979	85,504	1,321	6,819	19,976,384	20,299,581	34.20
1975	54,693	71,186	3,806	73,959	1,193	5,631	16,798,843	16,980,920	46.10
1976	49,267	84,395	4,191	75,744	1,175	6,001	18,110,651	17,085,365	43.30
1977	54,934	86,162	4,258	80,917	1,145	6,754	19,124,424	18,409,468	39.40
1978	56,539	88,181	4,561	81,266	1,102	7,053	19,557,576	18,704,641	46.60

---

[1] Balance sheet estimates. Total of marketings, farm slaughter, deaths and on hand end of year equals totals of births, inshipments, and on hand beginning of year. Includes Alaska and Hawaii beginning 1961.

[2] All hogs and pigs. Beginning with 1965 number on hand is estimate as of December 1 previous year. [3] Excludes interfarm sales.

[4] Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial meat production estimates beginning with January.

[5] Adjustments made for inshipments and changes in inventory.

Table 24.—Sheep and lambs: Inventory numbers, lamb crop, disposition, production, and prices, 1960–78[1]

Year	Inventory Jan. 1[2]	Lamb crop	Inshipments		Marketings[3]		Farm slaughter[4]		Deaths		Production[5]	Marketings[3]	Price per 100 pounds	
			Sheep	Lambs	Sheep	Lambs	Sheep	Lambs	Sheep	Lambs			Sheep	Lambs
	1,000 head										1,000 pounds		Dollars	
1960	33,170	21,012	608	5,491	3,572	19,068	119	222	2,458	2,132	1,628,014	2,083,980	5.60	17.90
1961	32,725	20,782	541	5,391	3,992	19,632	118	229	2,437	2,062	1,646,105	2,178,264	5.20	15.80
1962	30,969	19,712	636	5,198	3,788	18,783	113	218	2,430	2,007	1,490,722	2,074,148	5.63	17.80
1963	29,176	18,516	620	4,962	3,720	17,956	113	212	2,268	1,889	1,403,141	2,002,402	5.76	18.10
1964	27,116	16,994	736	4,838	3,437	16,757	107	193	2,265	1,797	1,330,507	1,860,420	6.00	19.90
1965	25,127	16,312	5,165		2,454	15,213	294		2,199	1,711	1,217,139	1,639,762	6.34	22.80
1966	24,734	15,881	4,679		2,785	14,674	268		940	1,674	1,249,097	1,651,261	6.84	23.40
1967	23,953	15,017	4,030		2,911	13,993	245		1,980	1,649	1,153,596	1,603,247	6.35	22.10
1968	22,223	14,443	4,035		2,298	13,448	237		1,789	1,580	1,166,190	1,487,480	6.58	24.40
1969	21,350	13,723	4,119		2,282	12,873	233		1,826	1,556	1,065,074	1,446,504	8.10	27.20
1970	20,423	13,465	4,032		1,983	12,840	249		1,638	1,478	1,099,385	1,435,918	7.52	26.40
1971	19,731	12,998	4,004		2,202	12,627	236		1,482	1,446	1,070,502	1,447,047	6.56	25.90
1972	18,739	12,599	3,976		2,170	12,383	224		1,417	1,480	1,004,102	1,411,461	7.26	29.10
1973	17,641	11,500	3,275		2,198	10,879	202		1,386	1,441	895,776	1,278,090	12.90	35.10
1974	16,310	10,509	2,629		2,172	9,888	217		1,248	1,409	806,755	1,177,539	11.20	37.00
1975	14,515	9,857	2,343		1,771	8,997	212		1,081	1,343	781,120	1,072,665	11.30	42.10
1976	13,311	8,888	2,466		1,445	8,071	197		983	1,202	732,765	961,780	13.20	46.90
1977	12,766	8,606	2,173		1,504	7,405	198		910	1,181	703,942	896,568	13.40	51.30
1978[6]	12,322	8,020	2,147		1,464	6,594	174		911	1,123	698,517	854,455	21.70	62.70

---

[1] Balance sheet estimates. Total of marketings, farm slaughter, deaths, and on hand end of year equals total of births, inshipments, and on hand beginning of year. Includes Alaska beginning 1961; Hawaii not available.

[2] All sheep and lambs.

[3] Excludes interfarm sales.

[4] Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial estimates beginning with January 1966.

[5] Adjustments made for inshipments snd changes in inventory.

[6] Beginning 1978 excludes inventory and supply and disposition items for Alabama, Arkansas, Delaware, Florida, Georgia, Mississippi, Rhode Island, and South Carolina.

Table 25.—Milk: Supply, utilization, and prices, 1960–78[1]

Year	Annual average number of milk cows[2]	Milk production per cow[3]	Supply				Utilization			Prices received by farmers		Milk-feed ratio[5]
			Beginning stocks	Production	Imports	Total	Domestic disappearance	Exports and shipments[4]	Total	Milkfat	All milk, wholesale	
	1,000 pounds		Million pounds							Cents/lb.	Dol./cwt.	
1960	17,515	7,029	4,160	123,109	604	127,873	121,444	1,029	122,473	60.5	4.21	1.45
1961	17,243	7,290	5,400	125,707	760	131,867	121,032	932	121,964	61.5	4.22	1.45
1962	16,842	7,496	9,903	126,251	795	136,949	123,075	1,718	124,793	59.4	4.09	1.40
1963	16,260	7,700	12,156	125,202	915	138,273	123,092	5,493	128,585	59.5	4.12	1.36
1964	15,677	8,099	9,688	126,967	830	137,485	124,741	7,454	132,195	60.2	4.17	1.38
1965	14,953	8,305	5,290	124,180	923	130,393	123,579	2,358	125,937	61.1	4.25	1.40
1966	14,071	8,522	4,456	119,912	2,791	127,159	121,092	1,208	122,300	67.2	4.83	1.53
1967	13,415	8,851	4,859	118,732	2,908	126,499	117,423	824	118,247	68.2	5.03	1.56
1968	12,832	9,135	8,252	117,225	1,780	127,257	118,779	1,771	120,550	68.4	5.26	1.70
1969	12,307	9,434	6,707	116,108	1,621	124,436	117,673	1,419	119,092	68.9	5.50	1.75
1970	12,000	9,751	5,245	117,007	1,874	124,126	117,333	990	118,323	70.0	5.71	1.74
1971	11,839	10,015	5,803	118,566	1,346	125,715	117,585	3,026	120,611	69.1	5.87	1.71
1972	11,700	10,259	5,104	120,025	1,694	126,823	119,178	2,147	121,325	67.8	6.07	1.73
1973	11,413	10,119	5,498	115,491	3,860	125,849	119,350	1,292	120,642	67.3	7.14	1.46
1974	11,230	10,293	5,207	115,586	2,923	123,716	116,672	1,157	117,829	63.2	8.33	1.34
1975	11,143	10,350	5,886	115,334	1,669	122,889	117,999	1,045	119,044	70.3	8.75	1.40
1976	11,055	10,879	3,844	120,269	1,943	126,056	119,326	1,022	120,348	83.4	9.66	1.53
1977	10,974	11,181	5,708	122,698	1,968	130,374	120,762	986	121,748	92.0	9.72	1.57
1978[6]	10,848	11,240	8,626	121,928	2,305	132,859	123,159	970	124,129	102.0	10.58	1.75

[1] Supply-utilization data, milk equivalent, fat solids basis.

[2] Average number on farms during the year; heifers that have not freshened excluded.

[3] Excludes milk sucked by calves and milk produced by cows not on farms.

[4] Includes sales for dollars, government-to-government sales, P.L. 480, and AID programs.

[5] Pounds of dairy feed (grain and concentrates) equal in value to 1 pound of wholesale milk.

[6] Preliminary.

METRIC CONVERSION CHART

	TO CONVERT THIS	TO THIS	MULTIPLY BY
LENGTH	inches	millimeters (mm)	25.4
	feet	centimeters (cm)	30.
	yards	meters (m)	0.91
	miles	kilometers (km)	1.61
	millimeters	inches	0.04
	centimeters	inches	0.4
	meters	yards	1.1
	kilometers	miles	0.6
WEIGHT	ounces	grams (g)	28.
	pounds	kilograms (kg)	0.45
	short tons	metric tons (t)	0.9
	grams	ounces	0.035
	kilograms	pounds	2.2
	metric tons	short ton	1.1
AREA	square inches	square centimeters (cm^2)	6.5
	square feet	square (m^2)	0.09
	square yards	square meters (m^2)	0.8
	square miles	square kilometers (km^2)	2.6
	acres	hectares (ha)	0.4
	square centimeters	square inches	0.16
	square meters	square yards	1.2
	square kilometers	square miles	0.4
	hectares	acres	2.5

VOLUME	TO CONVERT THIS	TO THIS	MULTIPLY BY
	teaspoons	milliliters (ml)	5.
	tablespoons	milliliters (ml)	15.
	fluid ounces	milliliters (ml)	30.
	cups	liters (l)	0.24
	pints	liters (l)	0.47
	quarts	liters (l)	0.95
	gallons	liters (l)	3.8
	cubic feet	cubic meters (m^3)	0.03
	cubic yards	cubic meters (m^3)	0.76
	milliliters	fluid ounces	0.03
	liters	pints	2.1
	liters	quarts	1.06
	liters	gallons	0.26
	cubic meters	cubic feet	35.
	cubic meters	cubic yards	1.3
TEMPERATURE	Fahrenheit	Celsius (°C)	0.56 (after subtracting 32)
	Celsius	Fahrenheit	1.8 (then add 32)
FARM PRODUCTS	pounds per acre	kilograms per hectare (kg/ha)	1.14
	short tons per acre	kilograms per hectare (kg/ha)	2.25
	kg/ha	metric tons per hectare (t/ha)	0.001
	kg/ha	pounds per acre	0.88
	t/ha	short tons per acre	0.44
	t/ha	kg/ha	1000.

1 BUSHEL OF . . .

—wheat, soybeans, potatoes = 60 lbs. × .45 = 27 kg
—corn, gr. sorg., rye, flaxseed = 56 lbs. × .45 = 25 kg
—beets, carrots = 50 lbs. × .45 = 23 kg
—barley, buckwheat, peaches = 48 lbs. × .45 = 22 kg
—oats, cottonseed = 32 lbs. × .45 = 14 kg

1 METRIC TON OF . . .

—wheat, soybeans, potatoes = 2,204.6 lbs. ÷ 60 lbs. = 36.74 bu.
—corn, gr. sorg., rye, flaxseed = 2,204.6 lbs. ÷ 56 lbs. = 39.37 bu.
—beets, carrots = 2,204.6 lbs. ÷ 50 lbs. = 44.09 bu.
—barley, buckwheat, peaches = 2,204.6 lbs. ÷ 48 lbs. = 45.93 bu.
—oats, cottonseed = 2,204.6 lbs. ÷ 32 lbs. = 68.89 bu.

74. GLOSSARY

ACREAGE ALLOTMENT. The individual farm's share, based on its previous production, of the national acreage needed to produce sufficient supplies of a particular crop. Allotments apply only to peanuts, rice, and tobacco under the Food and Agriculture Act of 1977.

ADJUSTED BASE PERIOD PRICE. The average price received by farmers in the most recent 10 years, divided by the index (1910–14 = 100) of average prices received by farmers for all farm products in the same 10 years. Used in parity calculations.

AGRIBUSINESS. Producers and manufacturers of agricultural goods and services, such as fertilizer and farm equipment makers, food and fiber processors, wholesalers, transporters, and retail food and fiber outlets.

ANIMAL UNIT. A standard measure based on feed requirements used to combine various classes of livestock with size, weight, age, and use.

AQUACULTURE: The propagation and rearing of aquatic species in a controlled or selected environment.

ATTAINABLE YIELD. Yields expected through the use of known technology. See **YIELD, ECONOMIC MAXIMUM.**

BASE PERIOD PRICE. The average price for an item in a specified time period used as a base for an index—such as 1910–14, 1957–59, 1967.

BASIC COMMODITIES. Six agricultural crops (corn, cotton, peanuts, rice, tobacco, and wheat) declared by legislation as requiring price support.

BREEDING UNIT INDEX. A measure of a breeding herd, including the total number of female animals capable of giving birth, weighted by the production per head, in a base period.

CARRYOVER. The supplies or volume of a farm commodity not yet used at the end of a marketing year. It is the remaining stock carried over into the next year. Marketing years generally start at the beginning of the new harvest for a commodity and extend to the same time in the following year.

CASEIN. The major portion of milk protein. It is manufactured from skim milk and is usually marketed in dry form. Food grade casein is used in processed foods and industrial grade casein is used in making glue, paint, and plastics.

CASH GRAIN FARM. A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of the value of products sold.

CENSUS OF AGRICULTURE. A count taken by the Bureau of Census every 5 years of number of farms; land in farms; crop acreage and production; livestock numbers and production; farm spending; farm facilities and equipment; farm tenure; value of farm products sold; farm size; type of farm; and so forth. Data are obtained for States and counties.

CLIMATE. The sum total of all atmospheric or meteorological influences—principally temperature, moisture, wind, and evaporation—which combine to characterize a region and give it individuality by influencing the nature of its soils, vegetation, and land use.

COMPLEMENTARY IMPORTS. Agricultural import items not produced in appreciable commercial volume in the United States. Examples: Bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber. See **SUPPLEMENTARY IMPORTS.**

CONSERVATION, SOIL. A combination of land use and practices to protect and improve soil productivity and to prevent soil deterioration from erosion, exhaustion of plant nutrients, accumulation of toxic salts, excessive compaction or other adverse affects. See **LAND CAPABILITY AND SOIL.**

CONSERVATION TILLAGE. Any of several farming methods that provide for seed germination, plant growth, and weed control yet maintain effective ground cover throughout the year and disturb the soil as little as possible. The aim is to reduce soil loss and energy use while maintaining crop yields and quality.

CONSUMER PRICE INDEX. General measure of retail prices (goods and services) usually bought by urban wage earners and clerical workers. Includes prices of about 400 items, including food, clothing, housing, medical care, and transportation.

CONTOUR FARMING. Field operations—such as plowing, planting, cultivating, and harvesting—on the contour, or at right angles to the natural slope to reduce soil erosion, protect soil fertility, and use water more efficiently.

CONTRACT PRODUCTION. Producing crops or livestock under an agreement to deliver specified goods and services in certain quantities and of certain quality at a later time.

COOPERATIVE. An enterprise or organization owned by and operated for the benefit of those using its services. In agriculture, such an organization is owned and used by farmers mainly to handle the off-farm part of their business—buying farm supplies, marketing their products, furnishing electric and telephone service, and providing business services—at cost. Essential features are democratic control, limited return on capital, and operation at cost, with distribution of financial benefits to individuals in proportion to their use of the services made available by the cooperative.

COOPERATIVE EXTENSION SERVICE. Educational work for people outside of classrooms, carried on by the States, usually through the resources of the land-grant colleges and universities in cooperation with the U.S. Department of Agriculture. The Extension staff of the Science and Education Administration, U.S. Department of Agriculture, represents the Department in the conduct of cooperative extension work.

CORN-HOG RATIO. Number of bushels of corn that are equal (in value) to 100 pounds of live hogs; that is, the price of hogs per hundredweight divided by the price of corn per bushel. Can be calculated in terms of U.S. average prices received by farmers, prices received by farmers in a given area or on the basis of central market prices rather than farm prices. A favorable (high) ratio is usually followed by an increase in hog production; an unfavorable (low) ratio, by a decrease.

CORPORATION FARM. A farm that is legally incorporated; can be of any size, including family farms.

COST-OF-PRODUCTION. The average amount in dollars per unit used in growing or raising a farm product, including all purchased inputs and sometimes including allowances for management and the use of owned land. May be expressed on a unit, a per-acre, or a per-bushel basis for all farms in an area or in the whole country.

COUNTY AGENT. A professional worker—jointly employed by the county, State Cooperative Extension Service, and the U.S. Department of Agriculture—to bring agricultural and homemaking information to local people and to help them meet farm, home, and community problems. Also called extension agent, farm and home advisor, agricultural agent, home demonstration agent, and 4-H or youth agent. See **COOPERATIVE EXTENSION SERVICE.**

COVER CROP. A close-growing crop, grown primarily to protect and improve soil between periods of regular crops, or between trees and vines in orchards and vineyards.

CREDIT, SUPERVISED. A technique of providing loans in adequate amounts at low interest combined with intensive supervision provided by a management supervisor to help small farmers and their families upgrade their farming and homemaking.

CROSS-COMPLIANCE. A government farm program term meaning that if a farmer wishes to participate in a program for one crop by meeting the qualifications for price supports and loans for that program, he must also meet the program provisions for other major program crops which he grows.

CUSTOM WORK. Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to perform the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples.

DEFICIENCY PAYMENTS. See **PRICE SUPPORT PAYMENT.**

DIALDEHYDE STARCH. A chemical derivative of starch derived from cereal grains, used to improve wet strength of paper products and tanning leather and other uses.

DISASTER PAYMENTS. Federal aid provided to farmers for feed grains, wheat, rice, and upland cotton when either: (1) planting is prevented, or (2) crops yields are abnormally low because of adverse weather and related conditions.

DISK. A harrow composed of circular plates arranged at an angle with the line of pull. Used to prepare soil for seeding. Also, disk plow, a plow composed of large circular plates. See **HARROW.**

DRYLAND FARMING. A system of producing crops in semiarid regions—usually with less than 20 inches of annual rainfall—without the use of irrigation. Frequently, in alternate years part of the land will lie fallow to conserve moisture.

ENZYMES. Substances produced by living cells that can bring about or speed up chemical reactions without undergoing change themselves.

EROSION. The loosening and movement of the solid material of the land surface by wind, moving water, ice, and landslides.

FALLOW. Cropland left idle during the growing season. It is usually tilled to control weeds and conserve moisture in the soil.

FAMILY FARM. A farm where the operator and his family make most of the day-to-day management decisions, supply the equity capital, and supply a significant part of the labor needs.

FARM. Formerly, the definition of a farm was based on a combination of the "acres in the place" and the "value of farm products sold." "Place" included all land on which agricultural operations were conducted under the control of one person, partnership, or corporation. Places of 10 or more acres were counted as farms if estimated sales of agricultural products were at least $50. Places of less than 10 acres were counted as farms if sales of agricultural products for the year were at least $250. Now, starting in 1978, a farm is any place that has $1,000 or more gross sales of farm products.

FARM OPERATOR. A person who operates a farm, either by doing or supervising the work and by making the day-to-day operating decisions.

FEDERAL LAND BANK ASSOCIATIONS. Local farmer-owned organizations, 512 in number, through which farmers obtain long-term (up to 40 years) loans on land. The associations are an integral part of the Farm Credit System, a lending group that supplies nearly one-third of the borrowed capital used by farmers and nearly two-thirds of the credit used by farmer cooperatives. The system's lending institutions include: Federal Land Banks for loans on land; Production Credit Associations for short-term and intermediate operating loans; and the Banks for Cooperatives for loans to cooperatives.

FEEDGRAIN. Any of several grains and most commonly used for livestock or poultry feed, such as corn, grain sorghum, oats, and barley.

FERTILITY, SOIL. The quality that enables a soil to provide plant nutrients in the proper amounts and in the proper balance for the growth of specified plants, when other factors such as light, temperature, and the physical condition of the soil are favorable.

FERTILIZER. Any material used to supply nutrients for plants.

FOOD, FARM-PRODUCED. Food products originating on U.S. farms. These include processed products made mainly from farm-produced ingredients, as well as eggs, fresh fruits and vegetables, and other products sold to consumers without processing. Nonfarm foods are those not originating on farms, such as fish and imported foods.

FOOD GRAIN. Cereal seeds most commonly used for human food, chiefly wheat and rice.

FORWARD CONTRACTING. A method of selling crops before harvest by which the buyer agrees to pay a specified price to the grower for a portion, or all, of his crops.

4-H CLUBS. Organized groups of young people (ages 10-21), through which the Cooperative Extension Service, the U.S. Department of Agriculture, and State Land-Grant Universities carry on educational work in farming and homemaking projects, career development, citizenship, leadership, and other youth development activities. The H's stand for head, hand, heart, and health. See **COOPERATIVE EXTENSION SERVICE.**

FUNGICIDE. Any substance used to kill fungi, which are forms of plant life, often undesirable, that lack chlorophyll and are unable to make their own food.

FUTURES CONTRACT. An agreement between two people, one who sells and agrees to deliver, and one who buys and agrees to receive a certain kind, quality, and quantity of product to be delivered during a specified delivery month at a specified price.

GREAT PLAINS. A level to gently sloping region of the United States which lies between the Rockies and approximately the 98th meridan, stretching from Canada to Mexico. The area is subject to recurring droughts and high winds. It consists of parts of the Dakotas, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico.

GROSS FARM INCOME. That which farm operators realize from farming. It includes cash receipts from the sale of farm products, Government payments, value of food and fuel produced and consumed on farms where grown, rental value of farm dwellings, and an allowance for change in the value of year-end inventories of crops and livestock.

HARROW. An implement set with spikes, springs, or disks used to pulverize and smooth soil. See **DISK.**

HARVESTED ACRES. Acres actually harvested for a particular crop, usually somewhat smaller at the national level than planted acres because of abandonment brought on by weather damage or other natural disasters or market prices too low to cover harvesting costs.

HERBICIDE. Any substance used to destroy or inhibit plant growth; mainly for killing weeds.

HOG-CORN PRICE RATIO. See **CORN-HOG RATIO.**

INCOME SUPPORT PAYMENT. Funds paid to farmers when farm prices are below support levels; arrived at by subtracting from the target price, or the total support level, the higher of (1) the loan rate, or (2) the national average price of a commodity during the first 5 months of the marketing year (calendar year price for cotton). Generally, the Federal Government pays this difference to a farmer who qualifies (by meeting all farm program conditions) for that portion of his production specified in the farm program. The payments are sometimes called "deficiency payments."

INTEGRATION. The combination (under the management of one firm) of two or more of the processes in the production and marketing of a particular product—generally the processes are capable of being operated as separate businesses. Diversification, on the other hand, is the production of two or more farm products by one firm or farmer.

INTERNATIONAL COMMODITY AGREEMENT. An undertaking by a group of countries to stabilize trade, supplies, and prices of a commodity for the benefit of participating countries. Such an agreement usually involves quantities traded, prices, and stocks management.

INTERNATIONAL TRADE BARRIERS. Regulations used by governments to restrict imports from other countries. Examples: Tariffs, embargoes, import quotas, and unnecessary sanitary restrictions.

LAND CAPABILITY. A measure of the suitability of land for use without damage. In the United States, it usually expresses the effect of physical land conditions, including climate, on the total suitability for agricultural use without damage. Arable soils are grouped according to their limitations for sustained production of the common cultivated crops without soil deterioration. Nonarable soils are grouped according to their limitations for the production of permanent vegetation and their risks of soil damage if mismanaged.

LAND-GRANT UNIVERSITIES. State colleges and universities started from Federal Government grants of land to each State to encourage further practical education in agriculture, homemaking, and the mechanical arts.

LAND-USE PLANNING. The decisionmaking process to determine the present and future uses of land. The resulting plan is the key element of a comprehensive plan describing the recommended location and intensity of development for public and private land uses such as residential, commercial, industrial, recreational, and agricultural. Implementing the plan is the applied phase.

LEGUME. A family of plants, including many valuable food and forage species, such as peas, beans, soybeans, peanuts, clovers, alfalfas, sweetclovers, lespedezas, vetches, and kudzu. They can convert nitrogen from the air to build up nitrogen in the soil. Many of the nonwoody species are used as a cover crop and are plowed under for improvement of the soil.

LIME, AGRICULTURAL. Materials, usually composed of the oxide, hydroxide, or carbonate of calcium, or of calcium and magnesium. The most common forms used in agriculture are ground limestone, hydrated lime, burnt lime, marl, and oyster shells.

LINTERS. The short fibers remaining on cottonseed after ginning. Too short for usual textile use, they are used for batting and mattress stuffing and as a source of cellulose.

LOAN RATE. The price per unit (bushel, bale, pound) at which the Government will provide loans to farmers to enable them to hold their crops for later sale.

MARKET BASKET OF FARM FOODS. Average quantities of U.S. farm foods purchased annually per household in a given period, usually a base period. Retail cost of these foods used as a basis for computing an index of retail prices for domestically produced farm foods. Excluded are fishery products, imported foods, and meals eaten away from home.

MARKETING ORDERS AND AGREEMENTS (FEDERAL). A means (authorized by, and based on, enabling legislation) to permit agricultural producers collectively to influence the supply, demand and/or price for a particular crop or commodity in order to improve the orderly marketing of the crop or commodity. Once approved by a required number of producers—usually two-thirds—of the regulated commodity, the marketing order is binding on all handlers of the commodity in the area of regulation. A *marketing agreement* may contain more diversified provisions, but it is enforceable with respect to those producers or handlers who voluntarily enter into the agreement with the Secretary of Agriculture.

MARKETING QUOTA. That quantity of a crop that will provide adequate and normal market supplies. This quantity is translated into terms of acreage needed to grow that amount and allotted among individual farms, based on their previous production of that commodity. When marketing quotas are in effect (only after approval by two-thirds or more of the eligible producers voting in a referendum), growers who produce in excess of their farm acreage allotments are subject to marketing penalties on the "excess" production and are ineligible for Government price support loans. For certain tobaccos, a poundage limitation is applicable as well as acreage allotments, when approved by grower referendum.

MARKETING SPREAD. The difference between the retail price of a product and the farm value of the ingredients in the product. This farm-retail spread includes the charges made by marketing firms for assembling, storing, processing, transporting, and distributing the products.

MARKETING YEAR. The year beginning at harvesttime during which a crop moves to market. See **CARRYOVER.**

NATIONAL FARM PROGRAM ACREAGE. The number of harvested acres of feed grains, wheat, and cotton needed nationally to meet domestic and export use and to accomplish any desired increase or decrease in carryover levels. Program acreage for an individual farm is based on the producer's share of the national farm program acreage.

NATIONAL FOREST. A Federal reservation dedicated to the production of timber, protection of watershed area, and equitable utilization and management of all natural resources within its boundaries. National Forests are administered by the Forest Service of the U.S. Department of Agriculture.

NATIONAL GRASSLAND. Land, mainly grass and shrub cover, owned by the Federal Government and administered by the Secretary of Agriculture as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing, wildlife, and recreation.

NATIONAL WOOL ACT. Legislation that provides price support for shorn wool at an incentive level to encourage production. The law also provides for a payment on sales of unhorn lambs.

NAVAL STORES. Products, such as turpentine and rosin, obtained from the distillation of crude pine gum.

NEMATOCIDE. Any substance used to kill parasitic worms called nematodes, abundant in many soils. Many nematodes attack and destroy plant roots.

NET FARM INCOME. The money and nonmoney income farm operators realized from farming as a return for labor, investment, and management after production expenses have been paid. Net farm income is measured in two ways: Net farm income before inventory adjustment and net farm income after inventory adjustment. Net farm income does not include changes in the value of inventories such as crops and livestock at the end of the year.

NITROGEN. A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein foods, plants get it from soil, and some bacteria get it directly from air.

NONFARM INCOME. Includes all income from nonfarm sources (excludes money earned from working for other farmers) received by owner-operator families residing on a farm and by hired farm labor residing on a farm.

NONMONEY FARM INCOME. A statistical allowance used in farm income compilations to credit farmers with income for the value of farm products used on the farm (instead of being sold for cash) and the rental value of farm dwellings. It assumes farmers otherwise live rent-free on their farm business premises.

NONRECOURSE LOANS. Price support loans to farmers to enable them to hold their crops for later sale. Farmers may redeem their loans by paying them off with interest. The loans are nonrecourse because if a farmer cannot profitably sell the commodity and repay the loan when it matures, the pledged or mortgaged collateral (the commodity on which the loan was advanced) can be delivered to the Government for settlement of the loan.

NORMAL CROP ACREAGE. The normal acreage on a farm devoted to a group of crops designated by the Secretary of Agriculture. When set-aside is in effect, a farm's total planted acreage of such designated crops plus set-aside cannot exceed the normal crop acreage if the farmer wants to participate in the program(s).

NORMAL YIELD. A term designating the average historic yield established for a particular farm or area. Can also describe average yields. Normal production would be the normal acreage planted to a commodity multiplied by the normal yield.

OFF-FARM INCOME. Off-farm income includes wages and salaries from working for other farmers, plus nonfarm income, for all owner-operator families and hired farm labor, regardless of where they live.

OIL SEED CROPS. Primarily soybeans, peanuts, cottonseed, and flaxseed used for the production of oils for cooking, protein meals, and nonfood uses. Lesser oil crops are sunflower, safflower, castor beans, and sesame.

ONE-MAN BALING. Use of field pickup hay balers, with self-tying attachments and bale ejectors, that allow one man to harvest hay crops.

PARITY PRICE. Price per bushel (or pound or bale) what would be necessary for a bushel today to buy the same quantity of goods (from a standard list) that a bushel would have bought in the 1910–14 base period at the prices then prevailing. Oversimplified, it would be the price per bushel of wheat that farmers would need today in order to buy a suit of clothes with the same number of bushels that it took in 1910–14.

PARITY RATIO. A measure of the relative purchasing power of farm products. The ratio between the index of prices received by farmers for all farm products and the index of prices paid by farmers for commodities and services used in farm production and family living. The parity ratio measures price relationships (prices received and prices paid); it does not measure farm income (units of production per acre and per animal have increased and fewer farmers share total farm income); nor does it measure farmers' total purchasing power (individual farms are larger and total farm production is higher); nor does it measure farmers' welfare (does not reflect off-farm income, Government payments, farmers' assets or other factors).

PAYMENT LIMITATION. A limitation set by law on the amount of money any one farmer may receive in farm program payments each year under the feed grain, wheat, cotton, and rice programs.

PESTICIDE. A substance used to kill a pest. Pesticides include insecticides, fungicides, herbicides, and nematocides.

PHOSPHATE. A major element in fertilizers. A term commonly used to indicate a fertilizer which supplies phosphorous.

POTASH. A major element in chemical fertilizers. A term commonly used to indicate a fertilizer which supplies potassium, an essential nutrient for plant growth.

PRICE INDEXES. An indicator of the average price change for a group of commodities which compares prices for the same commodities in some other period, commonly called the base period. Monthly price indexes computed by the U.S. Department of Agriculture are the Index of Prices Received by Farmers and the Index of Prices Paid by Farmers for Commodities and Services, Interest, Taxes, and Farm Wage Rates, referred to as the Parity Index when expressed in the 1910–14 = 100 base.

PRICE SUPPORT LEVEL. The price for a unit of a farm commodity (bushel, bale, pound) which the Government will support through price support payments. Price support levels are determined by law and are set by the Secretary of Agriculture. See **TARGET PRICES.**

PRICES-PAID INDEX. An indicator of changes in the prices farmers pay for goods and services (including interest, taxes, and farm wage rates) used for producing farm products and in farm family living. Is referred to as the Parity Index when computed on a 1910-14 = 100 base. Also computes on a 1967 = 100 base.

PRICES-RECEIVED INDEX. A measure computed on the basis of prices farmers received usually at the farm or in small local markets.

PRODUCTION CREDIT ASSOCIATIONS. Lending groups, owned by their farmer-borrowers, that provide short and intermediate term loans for up to 7 years from funds obtained from investors in the money markets. The associations are an integral part or the Farm Credit System.

PRODUCTION EXPENSES. Total cash outlays for production. Capital expenses are figured on annual depreciation rather than on yearly cash outlays for capital items.

PUBLIC LAW 480. A law passed by the Congress in 1954, often referred to as "P.L. 480" or the "Food For Peace" program. Primary purposes are to expand foreign markets for U.S. agricultural products and use U.S. agricultural abundance to combat hunger and encourage economic development in the developing countries. The program makes U.S. agricultural commodities available at low-interest, long-term credit under title I of the Act, and as donations for famine or other emergency relief under title II. Under title I, the recipient country agrees to undertake agricultural development projects to improve its own food production or distribution.

PULPWOOD. Wood used in the manufacture of paper, fiberboard, and so on.

RANCH. An expression used mostly in the western United States to describe a tract of land, including land and facilities, used for the production of livestock. Accepted western usage generally refers to the headquarters facilities, pastures, and other land as the ranch, as distinguished from range. Loosely defined, a ranch also may be a small western farm, such as a fruit ranch or a chicken ranch.

RANGELAND. Land that primarily produces native forage suitable for grazing by livestock or wildlife. Also, forest land that is producing forage. Usually refers to relatively extensive areas of land suitable for grazing but not suitable for cultivation—especially in arid, semiarid, or forested regions.

RECLAMATION: The process of reconverting disturbed lands, such as surface-mined lands, to their former uses or other productive uses.

RENEWABLE NATURAL RESOURCES: Resources such as soil and water that can be restored and improved to produce the food, fiber, and other things humans need on a sustained basis.

RESOURCES. The available means for production. Land, labor, and capital are the basic means of production on farms.

ROTATION, CROP. The growing of different crops, in recurring succession, on the same land.

ROUGHAGE. Feed, such as hay and silage, with high fiber content and low total digestible nutrients.

SECTION 32. A section of Public Law 320 (approved August 24, 1935) which authorizes use of customs receipts funds to encourage increased consumption of agricultural commodities by means of purchase, export, and diversion programs.

SET ASIDE. A Government farm program term used to designate the proportion of a farmer's normal crop acreage that he must plant to soil conserving uses (such as grasses, legumes, and small grain which is not allowed to mature) in order to be eligible for price support payments and loans.

SHARECROPPER. A tenant who shares crops, livestock, or livestock products with the landlord, who, in turn, often extends credit to and closely supervises the tenant. The sharecropper generally supplies only labor.

SILAGE. A crop that has been preserved in a moist, succulent condition by partial fermentation in a tight container (silo) above or below the ground. The chief crops stored in this way are corn, sorghum, and various legumes and grasses. The main use of silage is in cattle feeding.

SOIL. A dynamic natural body composed of mineral and organic materials and living forms in which plants grow on the surface of the earth. In the United States about 70,000 kinds of soil are recognized in the nationwide system of classification. Each has a unique set of characteristics and a unique potential for use.

A SOIL SERIES is a group of soils having horizons similar in characteristics and arrangement in the soil profile, except for the texture of the surface portion. They are given proper names from place names within the areas where they occur. Thus, Norfolk, Miami, and Houston are names of well-known soil series.

A SOIL TYPE (obsolete) is a subdivision of a soils series based on the texture of the surface soil, such as Miami silt loam.

A PHASE is a subdivision of s soil series, or higher unit of soil classification, based on characteristics that affect use and management of the soil but which do not vary sufficiently to differentiate it as a separate series. Thus, Miami silt loam, undulating, and Miami loam, sloping, are phases of the Miami series. Other phases may indicate stoniness, depth of rock, etc.

SOIL BANK. A program authorized by Congress in 1956 establishing an acreage reserve until 1958, which provided that growers be compensated each year to reduce production of certain crops by idling land. The conservation reserve section provided for rental payments to farmers who retired cropland for 3 to 10 years.

SOIL CONSERVATION DISTRICT. A legal subdivision of State government, with a locally elected governing body, responsible for developing and carrying out a program of soil and water conservation within a geographic boundary usually coinciding with county lines. The nearly 3,000 districts have varying names—soil conservation, soil and water conservation, natural resources, resource conservation, resources, natural resource or conservation districts. They help individual landowners, local groups, and others find help in natural resource management from USDA and many other agencies at all levels—and help those agencies design and carry out environmental programs.

SORGHUM, GRAIN. A cereal grass used mainly for feedgrain or silage. Often grown in corn and wheat areas.

SOYBEANS. A legume crop, native to the Orient, used mainly in the United States for high protein feed and oil.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA). A county or group of contiguous counties which contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. In addition, contiguous counties are included in an SMSA if according to certain criteria they are socially and economically integrated with the central city.

STARCH. A complex carbohydrate found in most plant seeds, bulbs, and tubers.

STRATEGIC GRAIN RESERVE. National grain stocks held in reserve intentionally by Government programs for the purpose of meeting future domestic and international needs.

STRIPCROPPING. Growing crops in a systematic arrangement of strips or bands to serve as vegetative barriers to wind and water erosion. See **CONTOUR FARMING.**

STUBBLE MULCH. A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

SUBSISTENCE FARM. A low-income farm where the emphasis is on production for use of the operator and his family rather than for sale.

SUPPLEMENTARY IMPORTS. Farm products shipped into this country that add to the output of U.S. agriculture. Examples: Cattle, meat, fruit, vegetables, and tobacco. See **COMPLEMENTARY IMPORTS.**

SYNTHETICS. Artificially produced man-made products that may be similar to natural products.

TALL OIL. A byproduct from the manufacture of chemical wood pulp. Used in making soaps and for various industrial products.

TARGET PRICES. A minimum level of commodity market prices determined by law to be adequate for farmers to meet the cost of production. Sometimes called the "guaranteed price level." The target price becomes the price support level at which the government will bolster farm income by making price support payments to qualifying farmers when national average market prices fall below the target. See **PRICE SUPPORT LEVEL.**

TECHNOLOGY. Applied science.

TOBACCO (types)

AIR-CURED—a process that uses natural atmospheric conditions to prepare the crop for use. Artificial heat is sometimes used to control excess humidity during the drying period.

FIRED-CURED—a process that uses artificial atmospheric conditions, such as open fires, from which the smoke and fumes of burning wood are partly absorbed by the tobacco.

FLUE-CURED—a process of artificial atmospheric conditions, that regulates heat and ventilation, without allowing smoke or fumes from the fuel to come in contact with the tobacco.

TRACE ELEMENT. A chemical substance used in minute amounts by organisms and held essential to their physiology (magnesium, iron, copper, etc.).

UNIT COST. The average amount it takes in dollars to produce a single item. The total cost divided by the number of items produced.

UPLAND COTTON. A fiber plant developed in the United States from stock native to Mexico and Central America. Includes all cotton grown in the continental United States except Sea Island and American Pima cotton. Staple length of upland cotton ranges from ¾ inch to 1¼ inches.

URBAN AND BUILT-UP AREAS. Cities; villages; and other areas of more than 10 acres used as industrial sites, railroad yards, cemeteries, airports, golf courses, shooting ranges, institutional and public administration sites, and similar areas.

UTILIZATION RESEARCH. Study of how a commodity can be used, in contrast with production research, which is a study of how a commodity can be produced more efficiently.

WATERSHED. The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. A major subdivision of a drainage basin. On the basis of this concept, the United States is generally divided into 18 major drainage areas, 160 principal river drainage basins, containing some 12,700 smaller watersheds.

WATERWAY. A natural or artificially constructed course for the concentrated flow of water.

WHOLESALE PRICE INDEX. Measure of average changes in prices of commodities sold in primary U.S. markets. "Wholesale" refers to sales in large quantities by producers, not to prices received by wholesalers, jobbers, or distributors. In agriculture, it is the average price received by farmers for their farm commodities at the first point of sale when the commodity leaves the farm.

YIELD, ECONOMIC MAXIMUM. The most that can be produced on full efficient application of technology presently known by all farmers. Assumes there are no limitations on management, materials, equipment, capital, and experience.

75. SELECTED REFERENCES

The Crop Reporting Board of USDA's Economics, Statistics, and Cooperative Service estimates production, stocks, inventories, disposition, utilization, and prices of agricultural commodities. Estimates cover other items concerning agriculture, such as labor, farm numbers, and fertilizer. Publications describing these and other estimates are listed in the "Crop Reporting Board Catalog," available from the Crop Reporting Board, ESCS, U.S. Department of Agriculture, Washington, D.C. 20250.

HOW TO ORDER "SUBSCRIPTION ONLY" PERIODICALS

Prices of periodicals listed as being available through "Subscription Only" can be obtained by writing the Superintendent of Documents. Do not send request or payment to the Department of Agriculture. Instead send order and remittance to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Remittances can be made by money order, or personal check. Currency is sent at sender's risk. Foreign currency and postage stamps are not acceptable. Remittances from foreign countries should be made by international money order payable to Superintendent of Documents, or a draft on an American or Canadian bank. UNESCO Coupons are also acceptable from foreign countries.

SITUATION REPORTS

Situation Reports summarize the current situation and present economic outlook for agriculture:

COTTON AND WOOL SITUATION, DAIRY SITUATION, FATS AND OILS SITUATION, FEED SITUATION, FRUIT SITUATION, LIVESTOCK AND MEAT SITUATION, POULTRY AND EGG SITUATION, RICE SITUATION, SUGAR AND SWEETENER SITUATION, TOBACCO SITUATION, VEGETABLE SITUATION, WHEAT SITUATION. All free. *Contents:* These commodity reports analyze supply, demand, price, and outlook of major farm commodities. They include tables and charts presenting current data on production, market movement, stocks, consumption, prices, and foreign trade. Relevant special studies are frequently included.

Distribution—Single subscriptions free on request to the Information Staff, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Washington, D.C. 20250.

AGRICULTURAL FINANCE OUTLOOK, free. *Contents:* An annual report that provides situation and outlook for the financial condition of farmers, farm real estate, farm debts and assets, and a projected balance sheet of the farming sector.

AGRICULTURAL OUTLOOK, subscription only, $19 domestic, $23.75 foreign. Order by check or money order from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. *Contents:* A monthly report that briefs the outlook and changes in commodity situation, the economics of agriculture, and foreign agricultural production and trade.

FARM REAL ESTATE MARKET DEVELOPMENTS, free. *Contents:* Issued once a year with two supplements. Summarizes trends in farmland values, volume of sales, financing of farm purchases, and factors affecting the land market. Each issue includes index numbers of estimated average value per acre by States.

FARMERS' NEWSLETTERS, free, for producers only. Each of six titles issued at least five times a year: Livestock, Wheat, Feed, Oilseeds, Cotton, General. Provide commodity, economic, outlook, and program information to help farmers make better production and marketing decisions.

FERTILIZER SITUATION, free. *Contents:* Published at the end of each year. Looks at estimated capacity to produce basic fertilizer materials in the coming year. Also looks at potential fertilizer demand in the year ahead, and analyzes U.S. fertilizer use in the year just concluding.

PRICES SPREAD FOR FARM FOODS, free. *Contents:* A monthly release containing statistics on farm-to-retail prices spreads for a market basket of farm foods and selected individual foods such as beef and pork.

THE DEMAND AND PRICE SITUATION FOR FOREST PRODUCTS, free. *Contents:* An annual report that presents information on trends in production, trade, consumption, and prices of forest products in the United States. Copies are available from the Forest Service, U.S. Department of Agriculture, Washington, D.C. 20250.

WORLD AGRICULTURAL SITUATION, free. *Contents:* Issued three times a year—early summer, fall, and winter. Appraises world agriculture for the current year. Regional situation reports and data books are issued from March through May for these regions: Western Hemisphere, Western Europe, the Communist Areas, Far East, and Oceania and Africa and West Asia. Each report gives data by country on agricultural output, use, trade, trends, and significant policy developments, with special topics as appropriate.

FARM FINANCE REPORTS

AGRICULTURAL FINANCE STATISTICS, free. *Contents:* Issued annually. Provides a reference book of data pertaining to, or related to, the financing of U.S. agriculture.

BALANCE SHEET OF THE FARMING SECTOR, free. *Contents:* Issued annually in October. A balance sheet as of January 1, which views the farm sector of agriculture as one large enterprise, and brings together individual series of farm assets and claims to these assets. It also includes the value of farm assets owned, and farm debt owed, by landlords.

FARM-MORTGAGE DEBT, free. *Contents:* Issued annually, shows total farm-mortgage debt and amounts held by principal lender groups by States.

FARM REAL ESTATE TAXES, RECENT TRENDS AND DEVELOPMENTS, free. *Contents:* Issued annually. Reports for States and regions, taxes levied on farm real estate, taxes levied per acre, index numbers of amount of tax per acre, the amount of tax per $100 of full land value, taxes levied on farm real estate as a percentage of net and gross farm income, and taxes levied on farm real estate as a percentage of total personal income of farm population.

FARM COSTS AND RETURNS AND EFFICIENCY REPORTS

CHANGES IN FARM PRODUCTION AND EFFICIENCY, free. *Contents:* Issued annually. Presents major statistical series on farm production, production inputs, and efficiency; and provides in one place the latest information on production trends, changes in farm inputs and practices, uses of cropland, labor productivity, and farm mechanization. Five supplements give data by farm production region. Supplement I has index numbers of farm production for groups of livestock and crops; Supplement II shows acreages of cropland used for crops; Supplement III gives man-hours of farm labor used for each group; and Supplement IV contains index numbers of farm production per man-hour for each group. Supplement V contains index numbers of total farm inputs and overall productivity.

LIVESTOCK FEED RELATIONSHIPS, free. *Contents:* Issued annually. Data reflect aggregate changes in feed utilization by kinds of livestock due to feeding practices, changes in livestock and poultry numbers, and supply situations for major types of feedstuffs. An index relating high-protein feed consumption is measured in high-protein animal units. Surplus and deficit feed grain balances by geographic areas are also shown for the 3 most recent feeding years.

FOREIGN AGRICULTURAL TRADE REPORTS

FAS COMMODITY CIRCULARS, free. *Contents:* Periodic reports on world production and trade of major commodities including grain and feed, cotton, oilseeds and products, livestock and meat, dairy and poultry, fruits and vegetables, sugar and tropical products.

FOREIGN AGRICULTURE, yearly subscription prices: $38 domestic; $48 foreign, single copies 80 cents domestic, $1 foreign. Send request and remittance to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Free distribution is limited to persons and organizations disseminating agricultural information to the U.S. public. Send your request to Information Services Staff, Foreign Agricultural Service, U.S. Department of Agriculture, Washington, D.C. 20250. *Contents:* A review and analysis of developments in overseas agriculture, with emphasis on effects of these developments on U.S. agricultural exports. Both commodity and geographical analyses are included.

FOREIGN AGRICULTURAL TRADE OF THE UNITED STATES, free. *Contents:* A monthly statistical and analytical review, emphasizes the current status and outlook for U.S. agricultural trade, including exports, under specified Government-financed programs, commercial exports, price developments, and quantity index for selected commodity groups.

Two annual supplements are published, one by calendar year and the other by fiscal year. They present detailed tables of the quantity and value of annual exports and imports of principal products for 2 years in both commodity-by-country and country-by-commodity order.

WEEKLY ROUNDUP OF WORLD PRODUCTION AND TRADE, free. *Contents:* A weekly summary of developments in world agricultural production and trade, emphasizing commodity developments and a weekly table on Rotterdam grain prices and levies.

WORLD ECONOMIC CONDITIONS IN RELATION TO AGRICULTURAL TRADE, free. *Contents:* Published in May and November, reviews important events in international finance and trade and their implications for U.S. agricultural exports, and appraises the financial position of selected foreign countries. Special articles provide a background of economic intelligence. The contributions of agriculture to the U.S. balance of payments and to total trade position also are reviewed.

RURAL POPULATION REPORTS

CENSUS-ESCS SERIES, free. *Contents:* Prepared cooperatively with the Bureau of the Census, provides annual estimates of the farm population distribution by age, sex, labor force status, and, at times, by other characteristics.

FARM POPULATION ESTIMATES, free. *Contents:* Usually issued annually, estimates the current farm population distribution by geographic regions and divisions and estimates the components of annual change (births, deaths, and migration) in the farm population for the United States and geographic areas.

HIRED FARM WORKING FORCE, free. *Contents:* Annual report on U.S. agricultural workers, based on data obtained for the Economics, Statistics, and Cooperatives Service by the Bureau of the Census in the December Current Population Survey. The report covers all persons 24 years and over in the civilian noninstitutional population who did any farm wage work during the year. Information includes days worked and wages earned at farm and nonfarm work by color, sex, age, employment duration (seasonal, casual, regular, etc.), migratory status, farm or nonfarm residence, and chief activities of the workers. In addition, each survey obtains special information on selected items such as educational status, total household wage earnings, or fuel problems of farm labor.

ANNUAL SUMMARIES

AGRICULTURAL CONSERVATION PROGRAM, limited quantities available; free upon request. Annual summary of participation and results of the program.

AGRICULTURAL SLIDE SERIES, purchase price: $40. A set of 295 full-color slides of all charts contained in the HANDBOOK OF AGRICULTURAL CHARTS. Designed for teachers, lectures, meetings, and exhibits. Order from Photography Division, Office of Governmental and Public Affairs, U.S. Department of Agriculture, Washington, D.C. 20250. Make check payable to Office of Government and Public Affairs, USDA.

AGRICULTURAL STATISTICS, free distribution limited to libraries and Members of Congress. Can be purchased for $5.60 from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. A comprehensive statistical report containing current and historical agricultural data. Revised annually.

APPALACHIAN LAND STABILIZATION AND CONSERVATION PROGRAM, limited quantities available; free upon request. Covers participation and results from inception of the program through the preceding calendar year.

COMMODITY CREDIT CORPORATION CHARTS, limited quantities; available free upon request. Graphic and tabular summary of financial and program data for the preceding fiscal year.

DAIRY PROGRAM, limited quantities available; free upon request. Details purchases and utilization of dairy products by the Commodity Credit Corporation by marketing year.

DISASTER PROVISIONS (Feed Grain, Wheat, and Upland Cotton Programs), limited quantities available; free upon request. Annual summary of participation by eligible payment category and crop.

HANDBOOK OF AGRICULTURAL CHARTS, single copies free on request while supplies last. *Contents:* Provides charts with accompanying data that cover key factors in the economic situation and outlook for agriculture. Revised annually.

REPORT OF THE PRESIDENT OF THE COMMODITY CREDIT CORPORATION, free distribution limited to Members of Congress. A Statutory report covering operations and financial condition of the Commodity Credit Corporation for the preceding fiscal year.

REPORT ON PARTICIPATION IN ASCS COUNTY PROGRAMS AND OPERATIONS BY RACIAL GROUPS, limited quantities available; free upon request. Participation in programs administered by ASCS; county office employment by racial group and sex; voters in ASC committee elections, and county committeemen elected, by racial group—for the preceding calendar year.

THE FERTILIZER SUPPLY, limited quantities available; free upon request. Provides data for preceding year on U.S. supply, imports, exports, and related material regarding plant foods: nitrogen, potassium, and phosphorus.

THE PESTICIDE REVIEW, limited quantities available; free upon request. Provides data for preceding year on production, sales, and trade in pesticides with related material.

WOOL PROGRAM, limited quantities available; free upon request. Covers production, payments, and marketings, by marketing year. Includes statistics on mohair production.

AGRICULTURAL MARKETING SERVICE REPORTS

FACTS ABOUT: INSTANT MARKET NEWS, AMS-572, free. *Contents:* Offers background information on market news and provides dial-a-market telephone numbers for instant Federal-State market news on various commodities throughout the country. A single copy is available from Information Division, AMS, 3620-S., U.S. Department of Agriculture, Washington, D.C. 20250.

FEDERAL-STATE MARKET NEWS REPORTS—A DIRECTORY OF SERVICES AVAILABLE, AMS-551, free. Copies available from Information Division, AMS, 3620-S., U.S. Department of Agriculture, Washington, D.C. 20250. *Contents:* A list, by commodity and State, of market reports available on supply, demand, and prices which aid producers, wholesalers, and others in the marketing chain to determine where and when to buy or sell.

FOOD MARKETING ALERT, free. *Contents:* A monthly guide to expected food supplies for volume buyers and communication media.

Special supplementary issues call attention to foods in temporary over-supply. State your occupation and need for the information when requesting to be added to the mailing list. Send request to: Information Division, AMS, 3620-S., Washington, D.C. 20250.

INSPECTION AND WEIGHING UPDATE, free. Issued frequently, but not on a regular schedule. *Contents:* Provides timely summary of important activities of the Federal Grain Inspection Service to all those who have an active interest in the grain industry. To be added to mailing list, direct request to: Information Division, AMS, 3620-S., Washington, D.C. 20250.

MARKETING ORDER ACTIONS, issued weekly by AMS, U.S. Department of Agriculture. *Contents:* Briefly describes all actions and proposals under federal marketing orders for fruits, vegetables, and specialty crops for one week, and explains how farmers, consumers, and others can submit comments to be considered. To be added to MOA mailing list, or for sample copy, send request to: Information Division, AMS, 3624-S., USDA, Washington, D.C. 20250.

TRANSPORTATION UPDATE, free. Published frequently by Office of Transportation, U.S. Department of Agriculture, Washington, D.C. 20250. *Contents:* Provides timely summary of items on agricultural and rural transportation. To be added to mailing list, direct request to: Information Division, AMS, 3620-S., Washington, D.C. 20250.

PERIODICALS

AGRICULTURAL ECONOMICS RESEARCH, free mailing list restricted to agricultural economics professionals. Write to Information Staff, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Washington, D.C. 20250. Domestic subscriptions $6.50 a year, foreign subscription $8.25 a year upon request and remittance to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. *Contents:* A quarterly containing technical articles on methods and findings of research in agricultural economics. It includes interim reports on work in progress and articles on new areas of research. Each issue carries book reviews.

AGRICULTURAL FINANCE REVIEW, free. *Contents:* Annually reviews developments and research findings on agricultural finance and related topics.

AGRICULTURAL RESEARCH, published monthly by the Science and Education Administration-Agricultural Research, reports results of research conducted by SEA-AR scientists. Yearly subscription, $10.00

in the United States and its possessions, $12.50 elsewhere. Single copies free to agricultural professionals on request from Science and Education Administration, U.S. Department of Agriculture, Washington, D.C. 20250; otherwise 90 cents domestic, $1.15 foreign. Send subscription orders to Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

EXTENSION REVIEW, published quarterly by the Science and Education Administration-Extension. Describes extension activities at federal, state and county levels. Issued free to workers in extension activities. Others may order from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Yearly subscription, $8.25 domestic, $9.35 foreign. Single issues, $2.25 per copy.

FARMER COOPERATIVES, published monthly by Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture, Washington, D.C. 20250. It is issued free to cooperative members and those who work directly with cooperatives; otherwise, subscriptions $10.00 per year, $12.50 foreign upon request to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Free copies can be obtained from ESCS. *Contents:* Carries feature articles about ESCS technical assistance and research projects, discusses current cooperative issues, and reports significant actions of farmer cooperatives across the Nation.

FOOD AND NUTRITION, published by the Food and Nutrition Service (FNS) to report on the Federal food assistance programs administered by FNS in cooperation with State and local agencies. The programs include the Food Stamp Program, the Food Distribution Program, the National School Lunch and School Breakfast Programs, the Child Care Food Program, the Summer Food Service Program for Children, the Special Supplemental Food Program for Women, Infants, and Children, and the Nutrition Education and Training Program. Free distribution is limited to cooperating agencies at the State, county, or city level; professional groups working with school programs or low-income families; persons who can further disseminate food and nutrition information, including the general press and libraries. Single copies 85 cents, 90 cents (foreign), yearly subscription (domestic) $5, $6.25 (foreign). Send remittance and request to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

SOIL CONSERVATION, published monthly by the Soil Conservation Service, Domestic subscriptions $10 per year, $12.50 foreign. Single copies 80 cents. Send subscription orders to Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Free distribution is limited to cooperators of the Department engaged in conservation activities, agricultural colleges and libraries, experiment stations, and similar institutions. Write to Soil Conservation Service, U.S. Department of Agriculture, P.O. Box 2890, Washington, D.C. 20013. *Contents:* Presents articles, in nontechnical language, about national programs for conserving and developing land and water resources, promoting rural economic development, developing recreation resources, and improving environmental quality on private land in urban and rural areas.

WEEKLY WEATHER & CROP BULLETIN, single copies free on request. Domestic subscriptions $13 per year, $18 foreign airmail. Make check payable to Department of Commerce, NOAA. *Contents:* This weekly publication of the Departments of Commerce and Agriculture summarizes weather and its effect on crops for the previous week. Condensed summaries give both weather and farm progress for all States. Order Weekly Weather and Crop Bulletin, Room 3526—South Bldg., USDA, Washington, D.C. 20250.

76. FARM INCOME CONCEPTS: THEIR MEANING AND MEASUREMENT

The Department of Agriculture has regularly published a comprehensive set of income estimates relating to agriculture since the mid-1920's. Basically, the estimates center around two major concepts of farm income.

1. One views agriculture as a business or industry. This measures gross farm income, farm production expenses, and finally the net return to farm operators for their farm work (including that of their families), for their management, and for the capital invested in their farms and equipment. Net return is measured as net farm income before adjustment for changes in year-end inventory adjustment and net farm income after inventory adjustment.
2. The other major concept relates to the people who live on farms and the incomes they have available for purchasing goods and services. This concept recognizes that there are some people living on farms, such as farm laborers and their families, in addition to people in farm-operator families. It also recognizes that farm people receive a significant part of their income from nonfarm sources. The series appropriate to this concept is—*Personal Income of the Farm Population from All Sources.*

The cash receipt estimates are on a commodity-by-commodity basis using detailed ESCS monthly price and marketing estimates by State. The expense estimates are by type of expense account; for the most part they are based on census of agriculture benchmarks with yearly movements derived from special surveys and ESCS estimates of prices paid by farmers.

The components used in calculating *net income* from farming before and after inventory adjustment for 1977 are shown in the following table:

Income from Farming, 1977

	Bil. dol.
Cash receipts from farm marketings	96.1
Government payments to farmers	1.8
Other farm income	1.5
Nonmoney income	8.7
Gross income	108.1
Farm production expenses	88.0
Net farm income before inventory adjustment	20.1
Net change in farm inventories	.4
Net farm income after inventory adjustment	20.6

Gross farm income includes four principal components:

1. *Cash receipts from farm marketings* of farm products represent gross receipts from commercial market sales as well as loans (net of redemptions) made or guaranteed by CCC and purchases under price support programs.
2. *Government payments to farmers* are those made directly to farmers in connection with farm programs.
3. *Nonmoney income* includes farm products consumed directly in farm households and the value of housing provided by farm dwellings. Expenses associated with these products and the dwellings are included in the production expense estimates.
4. *Other farm income* from recreation and machine hire and custom work.

Farm production expenses summarize the total costs incurred in farm production. They include current farm operating expenses for such items as wages paid to hired labor (in cash and in kind) and outlays for repairs of equipment and operation of the farm, as well as purchases of oil, feed, seed, and livestock. Overhead-type costs include charges for depreciation and other capital consumption, taxes on farm property, and interest on the farm mortgage debt.

Expenditures on new buildings, motor vehicles and other capital equipment are not included as a production cost. Instead, production expenses include an allowance for annual depreciation and other capital consumption.

Estimates of depreciation are based on replacement cost, which is the amount necessary at current prices to replace buildings and equipment used up during the year. Thus, after a period of substantial price increase, as has occurred since World War II, the current replacement cost basis results in larger depreciation charges than would estimates on an original cost basis.

Farm operators' net income before inventory adjustment represents what is left from gross farm income after deducting farm production expenses.

Net change in farm inventories measures the physical change of livestock and crops owned by farmers, valued at average prices prevailing during the year. In order to measure the net value of production during a given calendar year, it is necessary to take into account net changes in farm inventories. It should be recognized that inventories will frequently be sold at prices different from those used in the inventory change valuation.

Farm operators' net income after inventory adjustment is gross income less production expenses, plus or minus the value of the physical change in inventories. After adjustments for corporate officers salaries and corporate profits, it is the figure included in the national income estimates by the U.S. Department of Commerce as farm proprietors' income.

Farm wages of laborers on farms represent the income received by farm laborers living on farms from wages paid by farm operators.

Personal income of the farm population from all sources is the sum of the personal income of the farm population from farm and nonfarm sources. Personal income from farm sources is the net income of farm operators, including Government payments, *less* the net income of nonresident farm operators, *plus* wages and salaries and other labor income of farm resident workers, less contributions of farm resident operators and workers to social insurance. Personal income of the farm population from nonfarm sources consists of income received from nonfarm wages and salaries, business and professional income, interest, and transfer payments, such as unemployment compensation, social security, and veterans benefits. Also included is rental income from nonfarm sources and an estimate of income from items such as dividends and royalties.

The *per capita personal income* of the farm population is derived by dividing the appropriate totals by the number of people living on farms.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979—302-808